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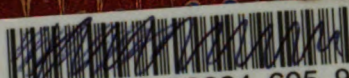
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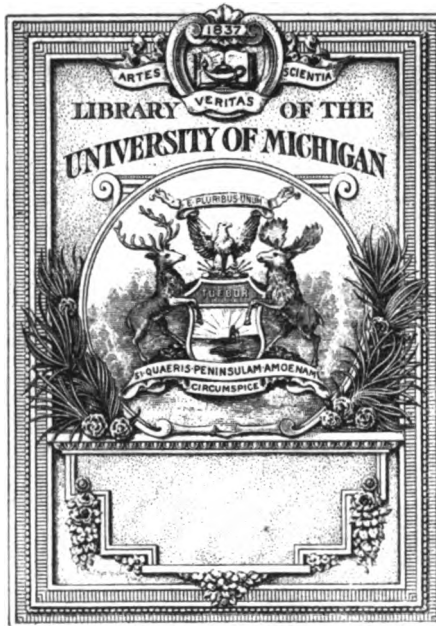
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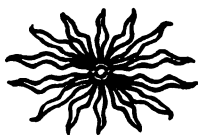
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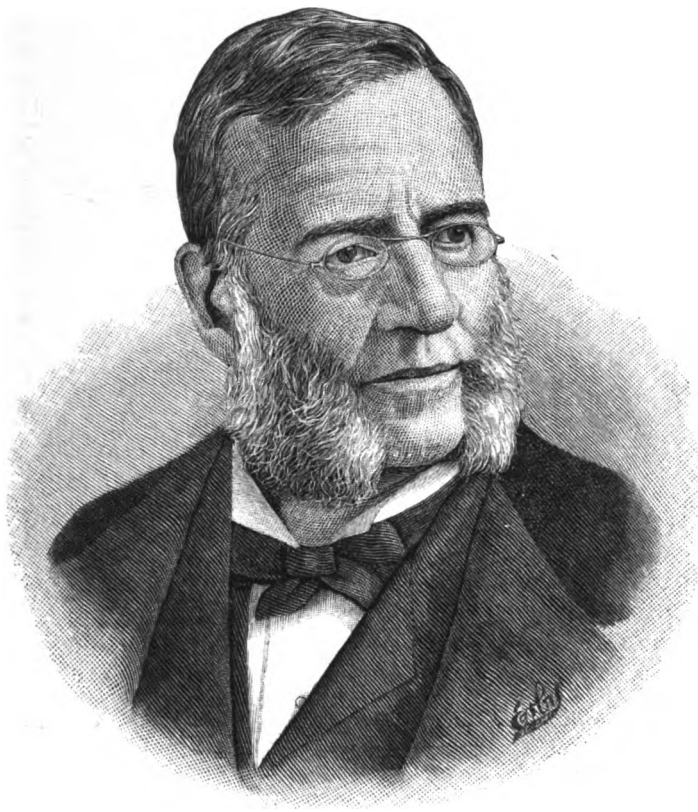
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ANTISEPSIS IN ABDOMINAL OPERATIONS.

*SYNOPSIS OF SERIES OF BACTERIOLOGICAL STUDIES BY DR. CHRISTIAN FENGER AND DR. BAYARD HOLMES.

THESE investigations were undertaken to determine how far the necessary aseptic conditions had been secured and maintained in the abdominal sections performed by Dr. Christian Fenger. One case of another operator is brought in to compare less thorough antiseptic precautions.

In order to estimate the results of these researches, we must know what preparations were made for the operation on the part of each concerned.

THE PREPARATION OF THE OPERATING ROOM.

In the Emergency Hospital and in the County Hospital, the walls and the floor and all the furniture were thoroughly washed with a 1-1000 sublimate solution on the day before the operation. The cracks about the windows and doors were stuffed with cotton, and the room closed to every one except the nurse that made the preparations.

To test the condition of the atmosphere in this room in the Emergency Hospital, four plates of gelatin were

exposed for 48 hours on the operating table, August 24 and 25, 1886. After six days' incubation in the moist chamber, from eight to twelve colonies of all kinds appeared on each square inch of surface. Most of these were moulds, which grew very rapidly; some were micrococci and some bacilli. As less than twelve colonies developed to the square inch, it is probable, if the plates were exposed only an hour instead of 48 hours, not more than one colony would be found on each four square inches. So that the danger of atmospheric infection from falling germs would be very slight under similar conditions. The danger would, no doubt, be increased by the movements of the assistants, and the increased circulation of air through the difference in temperature of the external and internal atmosphere when the room was in use.

THE PREPARATIONS OF THE OPERATOR AND ASSISTANTS.

Each took a sublimate bath (1-2000) and put on sterilized cotton suits. The

*This paper was read by Dr. Holmes before the Chicago Gynecological Society, April 12, and the tubes containing the specimens exhibited.

hands and arms were then washed five minutes with warm water and green soap, and scrubbed with a brush, and then washed half a minute in a 1-1000 sublimate solution. The patient received substantially the same treatment.

THE PREPARATION OF THE SPONGES,
SILK, INSTRUMENTS, GAUZE
AND WATER.

The sponges were those prepared by Schorse, cf Milwaukee.

The silk was boiled an hour in a 5 per cent. carbolic acid solution, and in some cases afterwards immersed in a solution of iodoform and ether and again sterilized by moist heat in a bottle stopped with cotton. This was done by placing the bottle in a pail containing an inch of water and boiling for an hour. The instruments were boiled an hour in a 5 per cent carbolic solution on the day before the operation and then dried. On the morning of the operation they were again boiled for a few minutes in a similar solution and placed in trays of sterilized water for use.

The water was sterilized by boiling in large tin cans, each holding 2 or 3 gallons, for an hour or more on three successive days. The cans had tin covers put on over a rim of cotton to stop the crack between itself and the can.

The culture medium used for these investigations was sterilized, alkaline, peptonized beef tea gelatin. Most bacteria will grow in this medium at the temperature of a living-room. Answers have been sought through these investigations to the following questions :

I.—*Are the sponges sterile when ready for use?*

After the sponges had been rinsed out in sterilized water three times, the assistant cut off small pieces from each of the sponges to be used with scissors, and they were put in a tube of liquified gelatin beef broth. This tube contains three such pieces of sponge surrounded by the clear solid gelatins.

Out of twenty-five sponges from seven operations only a single sponge was found infected with a single colony.

In this tube you will see the small triangular colony in the lower part of the upper sponge. With a small magnifying glass it seems to be a group of four or five spherical colonies in a cluster.

This sponge was used in operation xx., Nov. 30, sarcoma of the ovary, Emergency Hospital.

It would appear from this that the sponges are sterile at the beginning of the operations; and, if sterile, then of course aseptic.

II.—*Is the silk sterile?*

Five or six pieces of silk were usually taken from as many needles, and an inch cut off from each and put in a single tube of gelatin.

More than thirty such pieces were examined from nine operations, and not a single colony developed.

In no case was the silk infected at the beginning of the operation.

III.—*Is the cat gut sterile?* (Schorse's carbolized cat gut.)

Several pieces at four operations were examined. In one case only did any colonies develop. In this tube you see two pieces of cat gut at the bottom of the clear gelatin. Clinging to the side of one piece you can discover a small spherical white colony, and a little distance from it in the gelatin another similar colony. This cat gut was from a new bottle of carbolized cat gut used in operation 5, in a private house in the country. It is difficult to say how significant their presence is. They might arise from any one of following causes :

1. Imperfect primary sterilization of the cat gut.

2. Infection by floating germ or germs from the hands of the assistant when unwinding and cutting off the pieces.

3. Infection through transportation to and from the country.

4. Imperfect sterilization of the nutrient medium.

It is my own opinion that it is from infection through the second above named causes.

Thus out of over thirty tubes, con-

taining over sixty pieces of material taken before the operations, only *two* pieces were found infected with *three* colonies. This would indicate that the precautions taken are very successful at the beginning of the operations.

IV.—*Are the sponges sterile after they have been used?*

At the end of each operation, small pieces of each of the sponges used were cut off and placed in gelatin in the same manner as at the beginning. They were usually stained with blood, and sometimes had pieces of the contents of the cysts clinging to them. Thirty pieces from eight operations were thus examined. In this tube passed around, which contains two pieces of sponge from the last operation, No. 8, you see numerous colonies on the side of the upper sponge. They are spherical and whitish, and do not liquefy the gelatin. The following is the list of the sponges infected:

Operation 1. 5 sponges examined.
1 infected.

Operation 2. 2 sponges examined.
1 infected.

Operation 5. 4 sponges examined.
1 infected.

Operation 8. 2 sponges examined.
1 infected.

The sponges were generally sterile at the close of the operation, even though most of them had come in contact with the skin of the abdomen and the contents of the cysts.

It may seem strange that the sponges used in operation 4, pyo-salpinx, in which the cyst burst into the abdomen, in tearing it away from its adhesions, did not develop any colonies. Five sponges were examined, and all remained apparently sterile. From the pus in this cyst, cultures were made in solid blood serum with the growth of a small micrococcus usually in the so-called diplococcus form, but this microbe would not grow in gelatin beef tea.

V.—*Is the silk sterile at the close of the operation and after it has been used as sutures?*

Out of twenty pieces of silk, often cut from the ends of abdominal sutures, only a single piece was infected with a single coccus form, viz.: one of the two pieces taken from operation 1.

Over fifty pieces of material, after being used in operations, and only five pieces—4 sponges and 1 piece of silk—were found infected. It does seem, therefore, that the sponges and silk may be maintained sterile, so far as any germs that will grow in nutrient gelatin are concerned, even to the end of a long operation.

In marked contrasts to these results appear those from an operation performed by another operator who kindly allowed similar examinations. The details of the preparations were given for publication.

The operating room was well washed with soap and water, both walls and floors. It was in a new house which had never contained a sick person.

The sponges were part new and part old, having been used in a previous abdominal section. After that operation they had been soaked a day in a strong solution of bicarbonate of soda, and washed out in a 5 per cent. solution of carbolic acid and hung away in a bag. On the day before the operation all the sponges were boiled in a porcelain kettle for more than an hour in a 2½ per cent. solution of carbolic acid, and put into a jar and taken to the operating room. The silk was boiled and carried in the same jar. The operator took a bath and put on perfectly clean clothes on the morning of the operation. The assistants were instructed to do the same. The hands and arms of the assistants were washed in soap and water and then in a sublimate solution 1-1000.

The material examined consisted of four sponges and two pieces of silk before the operation, after the sponges were rinsed out, and the needles threaded, and of two sponges after the operation and several inches of the thread used. All the material was infected except one piece of silk examined at the beginning of the operation. Every

sponge had at least one colony of the hay bacillus, and one sponge after use showed more than 50 small white colors in the clear gelatin in the upper part of the tube.

What influence the asepsis of the material has on the results of the operations as to death or recovery, is a question far beyond the scope of these investigations. It would require a large statistical material of well observed cases, and more work than could be done by one observer. But it may be

safe to conclude that it is desirable to work through an abdominal operation with perfect asepsis everywhere, if such a thing is possible.

The above investigations have shown that such perfect asepsis can be attained. Thus if we are ignorant of the extent of danger from non-sterile material, we are hardly justified in trusting to the innocence or innocuousness of such an uncertainty while we can have the asepsis of the material an absolute guaranty against the dangers of infection.

OPERATIONS PERFORMED BY DR. CHRISTIAN FENGER.

6 Z	NAME OF OPERATION AND DATE.	COMPLICATIONS.	BACTERIOLOGICAL RESULTS.	RESULTS AS TO DEATH OR RECOVERY.
1.	Demoid of Ovary. Emergency Hospital. Nov. 9, 1886.	Bursting of cyst into the abdomen during operation. Irrigation.	1 sponge and 1 piece of silk infected after operation. 4 tubes used to examine 12 pieces of material.	Recovery. Development of peritonoeal abscess, which was opened in the sixth week. Complete recovery.
2.	Cysto Sarcoma of left ovary. Emergency Hospital. Nov. 30, 1886.	Solid movable tumor 6 inches in diameter, only slightly adherent to abdominal organs. Metastasis in peritoneum. Some acites present. Drainage.	6 tubes used to examine 11 pieces of material. 1 sponge before use and one sponge after use infected, each with a single colony.	Recovery.
3.	Radical Operation for Hernia. Emergency Hospital. Jan. 18, 1887.		8 tubes used to examine silk and sponges and cat gut. All sterile.	Recovery.
4.	Pyo-salpinx. Emergency Hospital. Jan. 19, 1887.	The Sac, adhering on all sides. Ruptured in removal. Irrigation of abdomen.	14 tubes of nutrient gelatin used. All sterile. <i>Contents of cyst planted in solid human blood. Serum developed diplococci of very small size, which do not grow in gelatin, probably gonococci.</i>	Death from acute sepsis within 48 hours.
5.	Double Demoid. Private House. Jan. 24, 1887.	The tumor of the left side had ruptured twenty years before, and produced an almost fatal peritonitis (?). This tumor was now large and adherent all around. The tumor on the right side was small and free.	9 tubes used with 25 pieces of material. One piece of cat gut infected with 2 colonies. One sponge infected with a single colony.	Death from shock within 12 hours.
6.	Cyst of ovary. Emergency Hospital. Feb. 8, 1887.	7 tubes used to examine 10 pieces of material. All sterile.		Recovery.
7.	Cyst of ovary. Emergency Hospital. March 22, 1887.		2 tubes used to examine silk and sponges after operation only. All sterile.	Recovery.
8.	Malignant Cyst of broad ligament. County Hospital. March — 1887.		4 tubes used. All sterile.	Death from uræmia on the 5th day. Autopsy. Atrophic and dilated kidneys.
9.	Proliferating Cystoma of ovary. Emergency Hospital. March 24, 1887.	Large and adherent. Burst during removal. Irrigation of abdomen to remove cyst contents. Drainage.	5 tubes used, 12 pieces of material. Only one sponge infected with numerous colonies.	Death after 36 hours. Autopsy after 6 hours. Thrombosis of right ventricle. Bloody serum found in the peritoneal cavity in small quantities was added to nutrient gelatin. It remained sterile after two weeks' incubation.

CONTRASTED CASE PERFORMED BY ANOTHER SURGEON IN WHICH LESS SUCCESSFUL ANTISEPTIC PRECAUTIONS WERE USED.

Cysto-sarcoma of ovary. Private house. Feb. 22, 1887.	Very large, and adherent to omentum and abdominal wall. Drainage by means of two rubber drainage tubes.	9 tubes used for silk, and sponges all infected except one, containing silk, before the operation. The sponges, after use, contained many 50-100 colonies. Each of the eight infected tubes had at least one colony of the Hay Bacillus.	Death on the third day. No autopsy. At each daily dressing there was evidence of some oozing from the drainage tubes.
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SOME POINTS IN LAPAROTOMY FOR VISCERAL INJURIES.

BY T. A. M^CRAW, M. D., DETROIT.

[Abstract of a Paper read before the American Medical Association, June 8, 1887.]

IT is no longer necessary to urge theoretical reasons in justification of laparotomy for concealed wounds of the abdominal viscera. There are already a sufficient number of successful cases on record to establish the operation as one of recognized merit, and that which now remains to do is to decide upon those technical details, attention to which can alone make the procedure generally successful.

In this paper I shall limit myself strictly to the study of such penetrating wounds of the abdomen as are caused by stabs, punctures and gun shots, omitting all consideration of contused, lacerated and incised wounds. I shall have to deal then, only with such wounds as are distinguished by small external openings, leading into narrow channels, and which are therefore characterized by great and necessary obscurity in diagnosis. Even with these limitations the subject is one of great scope, requiring study from many standpoints. The anatomy of the abdomen and its viscera must be studied with an especial view to operations for the repair of injuries. The very shape of the belly, as it changes in repose and action, may have a decided influence in determining certain practical points. The course of a bullet or weapon through the body and the deviations of missiles from the straight line have to be carefully studied for purposes both of diagnosis and treatment, and the symptoms caused by the various injuries of various organs demand attention. The relations of the external wound and that through the abdominal wall to the internal injuries, the place and character of the incisions to be made by the surgeon through the abdominal wall, the treatment operative or otherwise of the injured viscera, the methods of control-

ing hæmorrhage and the discrimination of cases which require operations from those in which operations are unjustifiable, are all subjects new as yet to the profession, which give opportunity for much difference of opinion, and which therefore are properly open to discussion. I shall not attempt, however, to do more than to discuss a few of the very many points which would present themselves to the surgeon in relation to this subject.

We may divide the viscera of the abdomen into classes from many different standpoints. They may be divided, first of all, by their relations to the peritoneum; some being completely invested by that membrane while others are either incompletely invested by it or lie altogether without its folds. Wounds of the one kind are marked by extravasations into the peritoneal cavity; those of the other by extravasations into the cellular tissue. We may further divide them into solid and hollow. Solid organs, when injured, may pour into the surrounding spaces their own peculiar secretions and blood from their broken vessels. The hollow viscera may, in addition, pour into the peritoneal cavity or cellular inter-spaces, quantities of foreign matter, which may be undergoing the changes of fermentation or decomposition. Injuries of the solid viscera may cause death by shock, by hæmorrhage, by traumatic inflammations and abscesses, and by suppression of an essential secretion. The injuries of certain of the hollow organs, and especially of the alimentary canal and urinary bladder, may, in addition, cause danger from the septic organisms, which they sometimes contain in great numbers, and which are, in case of injury, let loose upon the defenceless portions of the organism.

While both of these divisions are of certain practical importance, I shall nevertheless discard them in this paper for one which I consider to be of prime importance to the practical surgeon. I shall divide the abdominal viscera according to the degree of mobility which they are permitted to exercise in the abdominal cavity. We find in this respect the greatest differences in the various organs; for, while some—like the ilium and jejunum—have a range of motion which permits them to be drawn to almost any point in the abdominal cavity, others—like the extra peritoneal portions of the duodenum—are bound down to a very limited area. While no one organ can, strictly speaking, be said to be absolutely immovable, nevertheless the motion permitted to certain organs is so small as to be practically of no value. I shall therefore divide the abdominal viscera into the movable and immovable, using these terms relatively and not absolutely, and I shall hope to show in the course of my argument that the two classes require to be so differently considered, when made the objects of operative procedures, as to warrant this mode of classification.

The movable viscera are the spleen, pyloric ends of the stomach and duodenum, the transverse colon, the ilium and jejunum, the sigmoid flexure and the ovaries.

The immovable viscera are the liver and gall bladder, the kidneys and supra renal capsules, the cardiac portion of the stomach, the lower three-fourths of the duodenum, the pancreas, the ascending and descending colons and rectum, the uterus and bladder. That even in physiological conditions there are great variations in the mobility of these organs in different people is well known to everybody, while the changes in the length of their ligamentous attachments in conditions of disease are often such as to produce persistent dislocations. Generally speaking, however, and having a special reference to visceral injuries and not to visceral diseases, the lists as given above would be correct.

If we consider the mobility of these organs separately, we may say that the ligaments of the spleen are usually long enough to permit it to be brought over to the median line without great difficulty. The stomach as a whole is quite an intractable organ. It is held firmly in place by the attachments of its cardiac portion, which is always an inaccessible portion of the viscus. The pyloric portion, on the contrary, and the first parts of the duodenum can be moved freely over a pretty large area. The liver, notwithstanding some notable exceptions, is quite solidly fixed in its place under the ribs by short, unyielding ligaments, and the gall-bladder, though more accessible than the bulk of the liver, is scarcely more mobile. The lower portions of the duodenum are not only solidly fixed in their position by the layers of peritoneum which bind them down, but are also among the most hidden and inaccessible of all the abdominal entrails. This gut has no mesentery, and for the most part lies behind the peritoneum. The liver and colons, meso-colons and mesenteric vessels obstruct the operator who is obliged for any reason to get at its interior surface. The pancreas is immovable. The transverse colon is classed among the movable viscera; its range of motion, however, is confined to one direction; its center may often be depressed nearly to the pubis and elevated to the ensiform process, but it can not be moved very far in a lateral direction, on account of the immobile condition of the ascending and descending colons with which it is continuous. When these colons are bound closely to the abdominal wall, the transverse colon has almost no capacity for lateral displacement. When the ascending and descending portions have long meso-colons, the capacity for lateral displacement may be considerable.

The kidneys are of course immovable in their normal conditions. The ascending and descending colons lie in some persons behind the peritoneum and have no mobility whatever, while

in others they are partially invested by that membrane, and in others still they have short meso-colons. Even in these last mentioned cases they can be drawn with great difficulty to the median line. The sigmoid flexure and coecum are usually movable with a somewhat limited range of motion, while the rectum and uterus, except in pregnancy or diseased conditions, are usually fixed in place. The urinary bladder may be distended until its upper portion reaches nearly to the navel, but its lower part is quite out of reach from an abdominal wound.

The most movable of all the viscera are the jejunum and ilium, which can be drawn at pleasure to almost any part of the abdominal cavity.

That which makes this one quality of mobility or immobility of such importance to the surgeon is, of course, the necessity under which he labors of making his incisions in the abdominal wall, in case of operations on any viscus, in such a way as to make that viscus accessible. It may be regarded as one of the misfortunes of the surgery of intestinal wounds, that thus far the rules which have been established for the guidance of the surgeon in these cases have been founded on relations which concern only the movable viscera, while those of the immovable have been overlooked or ignored. Of the practical bearing of these anatomical relations I shall presently speak, after a short consideration of the nature of the wounds with which we have to deal.

Stabs and punctures are wounds made by daggers or other long, pointed, thin instruments and are characterized by small orifices and long narrow canals. They may be limited to the abdominal walls or penetrate into the abdominal cavity and injure the abdominal viscera; they vary in depth according to the length of the instrument and the force with which it is impelled. A short weapon may, however, make a very deep wound if the blow is struck with great force. The abdominal walls, yielding to the impulse, are indented by

the weapon, and the resulting wound may be altogether disproportionate in depth to the length of the blade which inflicted it. Stab wounds are usually straight, although the blade before its withdrawal may sweep around the circumference of a circle whose center is represented by the external wound; the narrow orifice may then lead into a wide and destructive wound. While one orifice means that the blade has entered but once, two orifices may either indicate two stabs, or that the one thrust has transfixed the abdomen. If the circumstances are such that the surgeon can know that the two orifices are due to the one thrust, they will then be an invaluable guide to the direction of the wound. The wounds inflicted on the viscera by stabs may be either incised or punctured. Only in rare cases when a dull weapon has been thrust into the abdomen with great force could such a wound be either contused or lacerated.

Gun-shot wounds differ from stabs and punctures in the character of the injury done to the parts and in the greater uncertainty which pertains to the course of the bullet. The size of the missile makes a vast difference in the gravity of the wound, and for this reason the experience gained in war from the destructive effects of rifle bullets on the intestines may not be accepted as an absolute guide in the prognosis when we have to deal with the smaller missiles fired from revolvers and pistols. One wound means of course that the ball is still lodged in the body. The rare exception to this rule is the entrance of a spent ball into the body together with a portion of the clothing and its subsequent withdrawal with the clothing. It might also mean that the surface of the body had been just touched by a glancing ball. Two or more orifices may be made either by one ball passing in and out or by two or more balls, or by one ball, of which broken portions have escaped. When it is certain that only one shot has been fired, two orifices usually indicate the

apertures of entrance and that of exit. They do not necessarily indicate, however, that the ball has passed in a straight line from one to the other aperture, for the deflection which it may suffer from the numerous obstacles which it meets may make its course more or less tortuous. These wounds have, indeed, become notorious for their irregularities, and there are many authentic histories of gun shots which have traversed the body in ways so erratic and peculiar as to defy explanation. The study of these cases has produced a faith in their lawless character which is hardly justified by the actual facts. It has indeed so excited the professional imagination as to warp the professional judgment. Putting all fable aside and studying the cases as they have really occurred, we will find that the course of a gun shot is determined by laws as rigid as any to be found in physical science. The deviations which it can make in its passage through the tissues are neither as many nor as great as are popularly supposed, and many so-called deflections are not deflections at all but merely a secondary tortuosity of the wound caused by changes in posture. It may be stated as a general rule, which nobody will probably dispute, that the resistance which can deflect a gun shot from its course must be at least commensurate with the force with which the missile strikes the deflecting surface. It will always be deflected at an acute angle and never at an obtuse or right angle. As regards the size of the angle, the general law will of course prevail that the angle of incidence and angle of reflection will be equal, but this law will be modified in its action by many circumstances, but especially by the peculiarities of the substances upon which the missile strikes. A hard substance like bone may deflect a ball either at a large or at a small angle, or it may partially break and then deflect it, causing complex conditions. A soft and yielding tissue, however, cannot offer sufficient resistance to a gun shot,

even though nearly spent, to deflect it, except when it strikes the surface at a very small angle. When the angle is at all large, the momentum of the ball overcomes the resistance and the tissues are penetrated. For this reason balls which run around the body in the abdominal wall always strike it at a very acute angle, become deflected even when penetrating the skin, and thenceforth until their exit continue to be deflected by the overlying integument at angles so exceeding minute that the whole course of the ball comes to represent a circle of large radius, even then the resistance is finally overcome and the missile escapes. Whether such tissues as form the human intestines, or the softer tissues of the human body, can ever appreciably change the course of a bullet, is with me a matter of great doubt, for the resistance which they can offer is so very small that they must either slip aside or suffer penetration. I am aware that I have the authorities against me in this matter, but the *a priori* considerations against this hypothesis are so strong, and the facts upon which it is founded are so easily explained by other and more reasonable hypotheses, that I feel compelled to regard it as, at least, an unproven theory. It must be conceded that the mere fact that a ball which has pursued a somewhat tortuous course in the body has bruised an intestinal coil without breaking it, does not prove that that intestine deflected the ball. The apparent deflections of the ball may be explained far more easily by the assumption of a subsequent change in the relative positions of the tissues. I think few men, even though medical men, realize how mobile is the abdominal wall and how various are the shapes which it may assume. Accustomed to its rounded form and to the even rhythmic motion of breathing, we are apt to forget that every muscle is capable of a separate and individual action, which may altogether alter the shape of the whole. If we observe naked men in violent

exercise, such as wrestling, it becomes apparent that the shape of the abdomen in action is ever changing. Now it is flat and again it is round, or one side is flat and the other is round, or one portion is raised and another depressed. The history of phantom tumors indeed, with their deceptive tumefactions, is sufficient to show of what the abdomen is capable. Now men are shot often when engaged in violent struggles, and there can be no doubt at all that many a gun shot which has passed through the tissues in an absolutely straight line has been described as deflected on account of subsequent changes in the shape of the body. The only possible way to prove conclusively the power of the human intestines or other similar tissue to change the course of a ball would be to establish the facts by experiments instituted outside of the body, where the influence of all modifying forces can be carefully estimated. It is highly important, in any event, to remember that a soft tissue can not possibly deflect a ball at any but a very acute angle. The human skin is a very tough tissue, but the histories of hundreds of cases in which a ball, striking it at an angle so small that the course of the ball must have been all but parallel to the surface, has nevertheless penetrated it instead of glancing off, will sufficiently show how impossible it would be for that or any softer tissue to escape penetration if the angle of incidence were very appreciable. If this theory is correct the deflections of living balls from the straight line, measured as they must be by very acute angles, can never be very great in the short distance which they have to travel in the body, and in all probability those observations which would seem to prove otherwise should be explained on the hypothesis, not of a glancing ball, but of a subsequent shifting of tissues. Only when the missile strikes a bone can it glance off at an angle of good size. Many of the puzzles which surgeons have encountered

are to be explained by the displacements of the dead ball, *i.e.*: of the ball whose momentum has been exhausted. It may then fall to the bottom of the cavity, follow the course of a canal, fall by gravity through the meshes of areolar tissue, or be carried along by muscular contraction. These changes of position do not affect, of course, the nature of the inflicted injury.

A ball entering the abdomen from behind may immediately, after entering the body, strike a bone and glance off at a considerable angle. The aperture of entrance and exit therefore of missile from that direction throw little light on the course of the ball. It is otherwise with those which enter on the front or lateral surfaces of the abdomen. Missiles from in front or the side may deviate, it is true, from their course, and these deviations make it impossible to tell from an examination of the external wounds what organs may have been injured underneath. In this statement I am perfectly agreed with Dr. Parke and other authorities. Unfortunately, however, it has been assumed that because the situation of the aperture and the initial direction of the wounds cannot determine the actual course of the ball through the tissues, therefore the study of these points is of little value to the surgeon as a guide in his operations. I cannot but regard this as a great practical error.

It is true that the exact course of a bullet in the abdomen cannot be determined prior to the operation, but it is not true that its approximate course may not be laid out with sufficient accuracy to guide the surgeon in his external incisions.

The tissues which can deflect a ball entering the abdomen from the front or side are, 1st, those of the abdominal wall, and, 2d, those of the abdominal cavity. When once the ball has traversed the cavity and struck the opposite wall, its power to injure the abdominal viscera usually ceases. There are, of course, exceptions to this rule, where a ball passing obliquely through

the abdomen strikes upon a rib and glances to enter again into a viscus, but these exceptional cases are rare. Now the greatest deflection suffered by such a ball before it escapes from the abdominal cavity is that caused by the skin and muscular walls. Should the missile enter these walls at a very acute angle it may run around the whole abdomen and not once enter the cavity. When once it has passed through the abdominal wall, its further course is through soft and unresisting tissues from which it can be deflected, if at all, only at a very acute angle. The course of the ball then from the point where it enters the cavity to that where it makes its exit from it must be nearly in a straight line. Now a careful study of the histories of many gun-shot wounds of the abdomen in which the ball has entered from the front or at the side has convinced me that the course of a bullet through the cavity and its wall lies almost always in the same plane, so that a plane projected to any three points in its course will have within its limits the whole path of the missile. I do not mean to be understood, in saying this, that the path and the plane would coincide with a mathematical exactness, but that their coincidence would be near enough for all practical purposes.

The especial purpose of these studies is to determine, if possible, how the surgeon can best make his incision through the abdominal wall so as to arrive easily and quickly at the seat of visceral injury. The best men in this department of surgery have already agreed where the incision should be made and where it should not be made. Parke, Dennis, Bull, Morton and Nancrede all lay down the law to the effect that the incision must be made in the linea alba, and that the wound must not be enlarged nor disturbed except for purposes of exploration. I have as yet sought in vain for any adequate explanation of this rule, although the unanimity with which it has been adopted is something marvelous

when we consider the independence which surgeons manifest in other departments of surgery.

Parke states positively "that primary abdominal section in the mid-line gives the best command over the damage done and furnishes the most feasible opening through which the proper surgical treatment of such damage can be instituted." "The wounds of entrance and exit of the bullet *should not be disturbed* in any manner except to control bleeding or remove foreign bodies when present. They need only to be covered by the general anti-septic dressing applied to the abdomen." And Dennis says: "The incision should be made in the median line. Any deviation from this rule is objectionable in many respects. The side incision does not permit the free exploration of the cavity, involves also dividing planes of muscles, the hæmorrhage form, which is troublesome to control, and the primary union difficult to secure. The median incision divides no vessels of any importance, passes through the linea alba, which can be securely sutured, and is not likely to give rise to ventral hernia." "The enlargement of the original wound for an examination of the peritoneal cavity will not enable the surgeon to exclude in all cases faecal extravasation, perforation, volvulus or hæmorrhage." And Dr. Nancrede solemnly warns the practitioner never to enlarge the original wound unless it is located in the linea alba.

I confess that I have been unable to recognize in these arguments that decisive logic which solves all doubts, and I find myself in that most depressing of all situations, in a minority of one. *Why* should the wounds of entrance and exit never be disturbed? *Why* should the incision never take in the original wound unless that chance to be in the median line? *Why* may not the surgeon explore the abdomen with sufficient thoroughness by a side incision, if he make it long enough? There is no point in the abdomen through which

an incision cannot be made as long as the linea alba in a straight line, if the surgeon chooses. Muscular hæmorrhage may be troublesome, but it is not usually difficult to stop, and incisions through muscular tissues heal by first intention, as those gentlemen can testify who have had experience in operations on the stomach, in which the incisions have been made parallel to the ribs through muscular planes. I have yet to learn that those operations have been followed by an undue number of ventral hernia. But while the reasons adduced for forbidding all but the median incisions are not convincing, there are many very cogent reasons for departing from that rule in many cases. Take for instance the case of any one of the immovable viscera. It may not, in case of injury, be possible to reach such a viscus from the median line, except by an enormous incision, and it may be possible to reach it by a short cut if made in its neighborhood. Are we prepared to accept the doctrine that a cut of twelve inches in the linea alba is less dangerous than one of four in the muscular wall? I had myself, last winter, a case of gun shot of the ascending colon and coecum which will illustrate this point.

Maggie McMahon, aged 24, was shot in the abdomen, at three o'clock on Tuesday morning, Dec. 21st, 1886. She was carried to St. Mary's Hospital at half past eight o'clock, and I saw her at nine o'clock on the same morning. I found her vomiting bile, and complaining of great pain. Her pulse was 120 per minute, her respiration 30 and her temperature 120° F. The bowels were moderately bloated and very tender, and two inches above and two inches inside of the right anterior superior spine of the ilium there was a gun-shot wound with black edges. There was no tympanitic resonance over the liver, no extravasation of faecal matter, no emphysema, and no general meteorism. The pain was located in the hypogastric right iliac and right lumbar regions. The wound was supposed to have been

made by a ball from a revolver of 32 caliber, although that point was never fairly settled. At 12 o'clock, noon, I cut through the abdominal wall at the site of the wound, by making an incision of four inches long in the direction of the fibres of the external oblique muscle, the wound being in the center of the incision. It was easy to trace the wound into the abdominal cavity by the discoloration of tissues, and it soon became evident that the ball had passed from before backwards, and from above downwards, into the peritoneal sac. My finger, on entering the cavity, immediately detected a hole on the anterior surface of the ascending colon, which I thereupon drew out on to the abdomen. This wound, from which faecal matter was constantly pouring, was an oval with its long axis transverse to that of the intestine. It was about half an inch long and a quarter of an inch wide. I sewed it up with a continuous suture of cat gut, in a double row, after Czerny's modification of Lembert's method. Searching then for the wound of exit, I found it also vomiting faeces directly behind at the junction of the meso-colon with the intestine. The meso-colon and meso-coecum in this case were long as the peritoneum, completely surrounding the gut. The ilium was united to the intestine on its inner and posterior surface midway between the two wounds. The second wound had its long axis also transverse to that of the bowel, and was sewed together in the same way as the first. This done, I was able to trace the track of the bullet down into the femoral canal before the external iliac and femoral artery, by a ragged opening in the muscle, but its course afterwards is a matter of great uncertainty. I carefully examined the small intestines without withdrawing them from the cavity, but found no other wound. The abdominal cavity was washed out and closed with wire sutures, and a drainage tube inserted. The patient began immediately to improve, and her temperature fell a degree on the same day; she vomited less

frequently, and the ejecta contained only mucus and swallowed fluid. Her pulse fell to 100, but her temperature rose again on the second and third days to 102. After the third day the improvement was more marked, and after sixth day she ceased altogether to vomit, and her temperature fell to 99 and 100. The drainage tube was then withdrawn, without having discharged one drop of pus. Subsequently, however, a small superficial abscess formed in the track of the wound, and on the tenth day discharged a teaspoonful of pus. Her convalescence was thenceforth uninterrupted, and she left the hospital Feb. 2d suffering only from a lameness consequent upon the passage of the ball into the thigh. There were present at the operation, Dr. Perley, U. S. A., Dr. H. O. Walker, Dr. N. W. Webber, Dr. Shurley, Dr. Boise, Dr. Robbins and others.

Now in this case I called the attention of the gentlemen present to the difficulty which I should have experienced in reaching the wounds in the gut, and especially that one on its posterior surface, had I made the usual incision in the *linea alba*. It would have been simply impossible for me to have got at it without cutting from the ensiform cartilage to the pubes and eviscerating her, whereas with a short incision I was enabled with ease to perform the necessary manipulations on the bowel and to carefully examine all that was necessary of the small intestine. I have since several times on occasion of post mortem examinations endeavored to bring the ascending colon out through an incision in the *linea alba* as it would have to be drawn out for purposes of operation, and have every time found it to require a long incision, and even then to be a matter of great difficulty. Here, then, was one case, at least, in which a great error would have been committed by adhering to the arbitrary rule of median incision. But that which was found true of the ascending colon would be found to apply equally to the descending colon, stomach and liver.

There is no way in which an immovable viscus can be made so accessible as by an incision parallel to its long diameter.

Even in operations upon the pylorus, which is quite free and movable, many surgeons have preferred the transverse or oblique incisions to that in the *linea alba*, because, as Wolfier says, 1st., The diseased portion is more readily got at; 2d, the remaining portions of the stomach can be more easily examined; and 3d, the existing adhesions to the peritoneum can be more easily excised. And besides these, for the further reason that the intestines are less readily prolapsed than in the median incision (Dr. E. Kuh, Langenbeck's Archives, 27th Vol., 24th part.)

How much more, then, than in excisions of the movable pylorus, is the transverse or oblique incision indicated, in those gun-shot wounds of the stomach in which both walls are perforated, and in which the posterior wound may lie very near the cardiac orifice. In such cases, the incision perpendicular to the long axis of the organ puts the surgeon to a great disadvantage, while a cut transverse or oblique or even slightly circular under the ribs enables him to expose the whole organ and draw it out into view. The perpendicular cut in the *linea alba* in case of gun-shot wounds of the liver enables the surgeon to feel the liver's edge and to pass his fingers for a short distance over its surfaces. He can neither examine the organ as a whole nor inspect its lower surface, while a transverse cut just below its edge will bring the whole viscus into the field of operation and enable him to operate even on its under surface. Let us apply these principles to gun-shot wounds. The first points to determine are whether the wound is a penetrating wound, and if so, what viscera have been hurt? Without discussing the question of diagnosis, on which I have nothing new to offer, I will say that it is generally conceded that there is no other way to determine the question of penetration except by following the

track of the ball until it either enters the abdominal cavity or leaves the abdominal wall; or if the track is too long, then by boldly opening the abdomen elsewhere for purposes of exploration. The question of whether to follow the one or the other of these procedures must be left to the judgment of the surgeon. It is evident that one could not follow the track of the ball if it lead across the whole width of the abdomen. It is equally clear that one ought not without due cause, to open the peritoneal cavity. Probably the best rule to follow is for the surgeon, in cases of doubt, always to begin his work by exploring for a short distance the track of the ball. If, then, it leads him quickly into the abdominal cavity, he learns that fact and can proceed accordingly. In any event, he learns the initial direction of the missile and can form some judgment as regards its further course. I think that the profession have undervalued the practical worth of the knowledge thus acquired. The conviction has been so strong that the ways pursued by gun-shots were utterly erratic and unaccountable that surgeons have come to discard all indications as of no service in actual diagnosis. This extreme view is certainly not justified by any larger experience. That no man can say before exploration exactly what organs are wounded is certain, but any surgeon with good judgment, after a careful examination of the course of the ball through the abdominal wall, can say about where the missile is gone and what viscera it may have hit. The course of a ball from the time it enters the abdomen until it strikes the opposite wall *must* be nearly in a straight line, for the reason which I have mentioned, and if it were not for the shifting of tissues and changes in shape which occur subsequent to the shooting, comparatively little difficulty would be experienced in tracking the bullet. As it is, the initial course of the ball reveals much that is of inestimable advantage to the operator. If a bullet enters two

inches to the right of the navel and passes from left to right and downwards and backwards, the surgeon knows positively that it has not hit the spleen, nor the stomach, nor the liver, if these organs are of normal size and in normal position. He knows absolutely, too, that such a ball could not possibly hit any organ which did not, at the time of the shooting, occupy a position downward, backwards and to the right of the aperture of entrance. In this hypothetical case, it might hit the transverse colon, or the small intestine, or the ascending colon, or coecum, or a mesentery, or meso-colon, or some blood vessel. Now an incision through the abdominal wall, beginning at the wound and carried a sufficient distance downwards and outwards in the line of its track, would suffice to enable the surgeon to examine every organ injured and to repair every injury. Every injured viscus could be brought into the wound and no viscus which could not be brought into the line of the incision could possibly have been injured by the missile.

The rule, which seems to have met the general approbation, that every inch of small intestine must always be examined in a gun shot wound of the abdominal cavity must surely be reconsidered. How, for instance, in such a wound as I have described, could the duodenum possibly be injured at its pyloric end? How, in a gun shot above the navel, in which the course of the wound passed from before and below, backward and upward, could the missile possibly come in contact with the lower part of the ilium? How, in any wound, could any viscus have suffered injury, which could not by gentle traction be brought into view through an incision, which, beginning at the aperture of entrance, uncovered the whole course of the ball? Let us take another hypothetical case, that of a gun-shot wound of the right hypochondriac region, in which the ball entering three inches above and two inches to the right of the umbilicus,

passes obliquely upward and backward. In this case, while it may not be beyond the bounds of possibility that a coil of the jejunum or ilium might be wounded, yet such an event would be extremely improbable, would it then be good practice for the surgeon to haul out these viscera into the cold in order to satisfy himself that a wound *did* not, which in the nature of things *could* not, exist?

Two cases from the current literature will illustrate this better than any hypothetical cases. In one case, a ball entered a little to the left and above the navel. With the accustomed indifference of surgeons nowadays to the course of the wound, the wound does not seem to have been examined in order to find out its direction. From the fact that the ball perforated both walls of the stomach and both walls of the duodenum, it is fair to infer that it passed from below and before upwards and backwards, and from left to right. Notwithstanding that it was utterly impossible for such a ball to injure any of the lower parts of the intestines, the whole intestinal track was examined down almost to the ileo-cæcal valve.

In case second, the ball entered over the ninth rib three and three-fourths inches to the right of the median line and four and a half inches above the navel (there must surely have been some mistake in these measurements), and was found one and one-half inches above the navel and eight inches to the left of the median line. It grazed the liver, perforated the stomach, wounded the small intestine in the left flank (the jejunum) and lacerated the left kidney. The surgeon subjected the entire bowel from the stomach to the sigmoid flexure to a close examination, but why? The lower portions of the duodenum, the greater part of the ilium, the ascending colon and cæcum and the lower part of the descending colon and sigmoid flexure could not possibly have lain in the course of the ball. Both of these cases died, and it may not be impertinent to

ask if the unnecessarily prolonged manipulation and exposure of the intestines had anything to do in causing their deaths? I do not wish, in criticising these cases, to be understood as reflecting in any way upon the practice of the two surgeons, both of whom I greatly esteem. They were perfectly justified in their manner of operation by the prevailing professional public opinion. I wish, however, to express emphatically by opinion as to the utter senselessness of a rule which requires the surgeon to examine and expose viscera and portions of viscera which could not possibly, in the nature of things, have suffered injury. The only explanation, indeed, which I can make for its adoption is the queer belief, apparently prevalent in the profession, that a gun shot has the power to run around the abdominal cavity, regardless of all natural law.

It is curious how the adoption of a theory will influence men's ideas and practice. I believe it is a well established rule in abdominal surgery that the longer the incision the greater the danger. Lawson Tait's great success had been ascribed by some to his remarkable skill in operating through small incisions, and yet, in the matter of operating for intestinal wounds, surgeons have seemed to persuade themselves that it made no manner of difference whether the abdomen was split in the median line from ensiform cartilage to pubes. Dr. Morton says, indeed, that there *is* no harm in a long wound if properly treated. I must protest earnestly against this kind of teaching. There is harm in a long wound even though properly treated, and when the surgeon makes one longer than is necessary he thereby unnecessarily endangers the patient's life. It is not only that the danger of infection is greater in a long wound, but also the danger of shock, the danger of chill, the danger of prolonged ætherization, and the danger of exhaustion. I have had many a patient under my hands whose life or death

seemed to me to depend upon the time in which the operation could be got through with. I do not mean to say that the surgeon should ever allow himself to make an incision too short to accomplish his purpose. On the contrary, I strongly suspect that hitherto, while the incisions in the *linea alba* have been in some cases made too long for safety, those which have been made in the track of the wound have been too short to be effectual.

I have tried by studying the cases already published to come to some definite conclusion as regards the relations which are borne by the directions of the wounds in the abdominal walls to the wounds of the viscera underneath, but have failed to come to satisfactory conclusions on account of the defective character of the reports. In most of the reports the position of the wound is given, but its direction through the abdominal wall is altogether ignored—a circumstance which indicates forcibly the neglect into which this most valuable indication has fallen. Before we can, however, come to a conclusion as to what wounds demand median incisions, and what wounds demand incisions elsewhere, what wounds demand examination of the whole intestinal track, and in what wounds that tedious and dangerous examination can be dispensed with, we must have at our disposal large numbers of accurate records in which the position of the external wound, its course through the abdominal wall, its subsequent course through the cavity of the abdomen and its termination, together with all other details, are reported so exactly as to permit of critical study. In the meantime, every surgeon who operates must be left unhampered by arbitrary rules, to make incisions and to follow operative methods according as his judgment dictates in any individual case.

When the abdomen is opened the visceral wounds discovered must be repaired. In considering these repairs, we have to distinguish between those of the hollow and those of the solid vis-

cera. Injuries of the intestinal wall must be invariably sutured with the Lembert suture. Many efforts have been made to improve this suture without success, unless Czerney's modification may be so considered. I have myself made very many experiments in this direction, which I will note here, for the purpose of pointing out a false way, into which some one else might blunder. I conceived the idea, after reading accounts of cases in which the Lembert suture had failed to hold the wounds together, that the intestine might grow together more rapidly and with a stronger union if the opposing surfaces were made raw by denuding them of their serous coverings. On the thick intestinal wall of the dog this is quite practicable. The serous membrane can be easily dissected with the finger nail from the muscular wall, and there will be left a thickness sufficient to hold a fine suture without having the needle pass through the mucous membrane. I operated on a great number of dogs after this fashion. Opening the abdominal wall, a gut was seized and brought to the surface. A circular cut was then made through the serous coat of the gut. This was dissected up on each side of the cut, and turned back like the cuff of a coat. It was wonderful to note the contractile power of the serous coat when freed from its attachments. It would then contract to half its previous dimensions. When the serous coat had been turned back, the intestine was cut through and the remaining walls cut partly away. The resected ends were brought together by sutures passed through the muscular layer alone, and then a second row through the shrunk and sometimes curled-up serous coat made the union secure. In some cases I, at the same time on the same dog, made two resections, one by this method and the other by Lembert's method, in order to compare the two kinds of stitches. The most of my dogs survived the operation, and as far as that goes my operation could be considered a success, but a

careful comparison between my own method and Lembert's proved conclusively the superiority of the latter. The serous surfaces not only healed together with less inflammation and suppuration than the raw, but the union could, after the same lapse of time, endure a greater strain.

Besides that, I satisfied myself on the cadaver that my method was quite impracticable on the thin-walled human intestine, and I abandoned it. I do not believe that any other method will ever supplant that of Lembert, and the only question is, which of the various modifications is most useful. I have adopted a continuous suture which I believe will make the patient nearly absolutely secure against any failure in union or extravasation of fæces. In the case I have just reported, I began the suture at a little distance from the end of the wound, by carrying the thread through the serous and muscular coats and then knotting it, leaving the end long. A continuous suture was then carried along the whole course of the wound and a third of an inch beyond it. The suture was then carried back at a higher level after Czerney's method until the point of beginning was reached, and then the thread was drawn tight and the two ends tied firmly together. It does not matter what kind of a continuous suture is used if the insertions of the thread are near enough together. The continuous suture is in my judgment better than the interrupted, both on account of its greater security and because it can be applied much more quickly.

There is another question in connection with these intestinal wounds, and that is, what wounds, if any, require resection of the bowel? Madelling had shown conclusively that any considerable destruction of the mesentery will insure gangrene of that portion of the bowel whose afferent blood vessels are thus destroyed. The case of Dr. Keen, reported at the last meeting of the American Surgical Association, corroborates Madelling's observations. If I understand his description, he found

on post mortem examination, opposite the injury to the mesentery, a gangrenous spot as large as a five-cent piece.

Pending further experience on this point, we may say then that great injury of the adjacent mesentery may demand excision of that portion of the bowel with which it is in contact. I do not believe that any other form of injury can ever demand excision, or be treated by any other method as safely and successfully as by suturing the wounds. Even such multiple wounds as Parke describes, and for which he counsels excision, will heal perfectly well by simple suture. Some experiments made upon dogs by myself and my assistant, Dr. F. W. Robbins, will illustrate this point. My object in operating was to find out what could be done by suturing multiple wounds near to one another in a gut instead of resecting the gut. I therefore in each case drew out the small intestine and cut holes with a pair of scissors from one to two centimeters in diameter. In one case they were made six in number, on one and the same side of the gut. This animal recovered and was afterwards operated upon by having two holes cut, each a centimeter in diameter on opposite sides of the gut and directly opposed. He recovered a second time.

In a second animal four holes were cut near one another but irregularly placed. This animal got well.

A third, operated on on a dark day, died, and the sutures were found to have been imperfect. There were in all six operations followed by one death. In closing the intestine, it was drawn together in such a way that the edge of the wound was transverse to the long diameter of the gut. In this way, the lumen of the gut was enlarged instead of narrowed at the seat of injury, whereas if it had been made parallel to the longitudinal axis, the lumen of the intestine would have been lessened. If a wound were so located, however, that its edges could be brought together only in a longitudinal line, the surgeon could nevertheless close it in this way

without fear of obstruction. Mikulicz closed in one case the defect in the bowel by a longitudinal suture, which made a considerable narrowing of the gut at that point. The patient nevertheless recovered, and suffered no subsequent symptoms of obstruction. Few people seem to realize the elasticity of the intestinal wall. It will stretch, especially in a longitudinal direction, like india rubber, and this elasticity enables it to recover its tone and shape after injury and loss of substance. For this reason I must dissent from the practice which has been recommended of excising the intestine for multiple wounds. Where the interval between the two wounds is too small to permit the insertion of stitches, the bridge should be cut away and the two wounds turned into one. But, however many the wounds, they should all be sutured without resection and the operation of resection reserved for those cases in which the vascular connections of the gut have been widely destroyed.

Wounds of the solid viscera have not yet been subjected to sufficient experimental study to enable the surgeon to form an opinion as to the best method of treatment. I have, myself, operated on three dogs by incising the edge of the liver and closing the gap by deep sutures. The bleeding was not very considerable. I passed sutures of fine silk or cat gut deep into the liver substance and thus closed the wounds. On one of the animals, an operation was simultaneously performed on the stomach. This one died after 24 hours. The edges of the cut liver had become agglutinated. The other two recovered.

The slight consequences, comparatively speaking, which have followed incisions into the liver for abscess should give rise to good hope in case of a wound of this organ not involving the large veins. The treatment of such a wound should be either by suturing it finely and deeply with cat gut, or by stuffing the wound in the organ with iodoform gauze, and keeping the wound

in the abdominal wall open for drainage. This last course was pursued successfully by Dr. H. Burckhardt, of Stuttgart. This surgeon was called on March 29th, 1886, to see a man who was collapsed from a stab in the mamillary line just below the ribs. As the patient was evidently dying of internal hæmorrhage, Burckhardt made a cut in the abdominal wall of 12 to 14 cent. in length, beginning at the wound; found the abdomen full of blood, the source of which proved to be a wound three cent. long in the left lobe of the liver. He stuffed iodoform gauze into the wound and stopped the hæmorrhage by compression. The patient recovered.

Whether a gun-shot wound of the kidney or spleen should demand excision of the organ is a question which further experience must answer. Wounds of the pancreas should be treated according to the principles laid down by Dr. Senn in his admirable monograph on that subject.

I shall in this paper discuss only one more question, that, namely, as to the class of penetrating wounds on which the surgeon should refuse to operate. The rule to perform laparotomy for penetrating wounds will surely be found to have many exceptions.

One of these exceptions may or may not be the wound of an empty stomach. A case from my own practice will illustrate this point.

Thomas J. Hilbish, a medical student, was the happy possessor of a revolver, which he was accustomed, at night, to keep under his pillow. He arose on the morning of July 17, 1879, and, for some reason, jerked the sheet from off the bed. With the sheet came the revolver, which fell upon the floor, and discharging one of its barrels. The ball struck Hilbish a little above and to the left of the navel, and its course was from below, upwards and, presumably, to the left. I was called and arrived within half an hour. He had then vomited blood and once again he vomited blood. He had eaten a light supper at six o'clock and had taken noth-

ing into his stomach since. The wound was not probed, but from the position in which he stood at the time of the accident, and which was described on the spot, I judged that its course through the tissues was from right to left, from below upwards, and from before backwards. He was put to bed, placed under opiates, allowed for several days neither to eat nor to drink, was fed and watered by enemata, and he recovered, not, however, without suffering from a severe traumatic peritonitis, during which he experienced great pain and his bowels became enormously bloated. In this case, there can be little question that the stomach was wounded, and that the time of injury in the early morning, when the viscus was empty, had everything to do with the subsequent favorable course of the wound. Dr. Keen's case illustrates probably (for the condition of the stomach, as respects its contents, is not noted) the same point. The girl shot herself at 6:30 A. M., and we may presume that she was then fasting. Dr. Keen especially remarks that there was no extravasation of the contents of the stomach and the wounds could hardly be discovered. The stomach is indeed much more tolerant of injury than is usually supposed. A remarkable case was that of Professor Von Mosetig, published in the *Vienna Medical Wochenschrift* of Dec. 18, 1886. On Nov. 17, 1886, a man of thirty-one years shot himself in the left side, the ball entering the fourth intercostal space a little outside of the nipple. There was no wound of exit, but in the back between the tenth and twelfth ribs there was a hard spot. The patient showed no gastric distress, no tenderness of the bowels and no vomiting. He had hæmatothorax on the left side and suffered greatly from dyspnœa. During four days he had no fever and ate heartily and regardlessly. On Nov. 21st he was seized with erysipelas of the face, from which he had on Nov. 30th recovered. He remained free from fever for the next two days, when on the

third day a rise of temperature preceded the discharge through the wound of a large quantity of offensive pus and blood. The hard spot on the back was then opened and the bullet found and extracted. The finger extended here into a cavity containing a large amount of black putrid matter. No communication could be established between the two orifices, but when the patient vomited on awakening from the anæsthesia, he discharged from the stomach some of the permanganate of potash solution which had been injected into the wound. After that food was from time to time discharged through the posterior wound. The patient remained free from fever, but on December 8th died suddenly from causes not stated in the narrative. The adduction revealed a communication of the anterior opening through the cavum pleuræ, diaphragm and left lobe of liver, with the stomach, both of whose walls had been perforated. Here, then, had been a frightful wound of the pleural cavity, stomach and liver, in which the only symptoms of trouble, during several days, had been those caused by hæmorrhage into the pleural cavity. Von Mosetig assumed that the stomach, at the time of injury, had been empty, and had quickly formed adhesions to the surrounding organs.

I have myself, in connection with Dr. Robbins, made a few experiments on dogs in order to determine the effect of wounds on an empty stomach. The dogs were all kept fasting for twenty-four hours, and then operated on by drawing the stomach out, stabbing it in one or more places and then returning it unsutured into its place. The wound in the abdominal wall was then securely sutured and the animal kept fasting for 48 hours with sparing allowance of water. Feb. 25, 1887.

Case 1st: Moderate sized dog, fasting for 24 hours. The stomach was drawn out and both anterior and posterior walls perforated simultaneously by passing a scalpel through them. This double puncture was made twice, with

an interval of half an inch. The stomach was then replaced and the abdominal wound sutured. The animal was then kept fasting, but was allowed a little water. After 48 hours he was fed on milk. He recovered without a bad symptom. The wounds through the stomach walls were about half an inch long.

Case 2d: Black dog, moderate size, fasting, was operated on as above, making, however, but one double wound. Died 24 hours after operation. There were found on post mortem evidences of great paritoneal congestion. In the abdominal cavity there was about an ounce of bloody fluid. The stomach was half filled with thin, yellowish fluid. The anterior wound had healed except that one corner, where there was an opening as large as a pin's head. The opening in the posterior wall, where the knife had been passed, had so thoroughly healed that even its location could not be discovered.

Case 3d. Feb. 26, 1887:

Dog of medium size, fasting, was operated on as before by grasping the stomach and transfixing both walls. This dog made a quick and complete recovery. The hole in the stomach was one cent. long.

Case 4th. Feb. 26, 1887:

Dog operated on as above, but the incision in both anterior and posterior walls measured half an inch. This dog recovered.

Case 5th. Scotch terrier. I operated on this dog as above, and besides cut a gash an inch long in the edge of the liver. He died in 26 hours. About three ounces of red fluid was found in the peritoneal cavity. The wound in the liver had become agglutinated outside, but not in the depths of the wound. The wound in the anterior wall of the stomach could not be detected from its peritoneal aspect, but the mucous membrane was marked by a linear slit. On the posterior wall, a discolored spot on the peritoneum showed the site of the wound, which, however, was closed, but the mucous surface had not healed.

It was astonishing to note, in the cases of death, how quickly nature had repaired most formidable injuries, for in both cases one of the wounds had healed so thoroughly by first intention that its site could be with great difficulty detected.

It can not be denied in the face of such evidence that wounds of the empty stomach, through perforating both anterior and posterior walls, may have a good prognosis, and yet I should hardly venture to say that the penetrating wounds, which are located in the region of the stomach and involve that organ, should be excepted from the general rule of exploratory laparotomy.

The difficulty of excluding injury of other viscera, and especially of the liver and colon, would seem to make abdominal sections imperative even in those cases.

When, however, from any other cause, the operative procedure should seem to be of doubtful propriety, the facts which I have just related might make the expectant treatment more justifiable.

A condition which would seem to me to more positively forbid abdominal section is that of great obesity. The case reported by Dr. Britton illustrates one objection to operating on such cases, namely, the difficulty in performing the operation through several inches of fat. The surgeon in such a case is cramped for room in which to work, and is further hindered by the difficulty in distinguishing the various tissues within the abdominal cavity. This is so great in cases of vast intra-abdominal accumulations of fat that physicians are puzzled even in post mortems to distinguish the relations of organs. How much more so must be the case in operations during life in which the external incision must be limited!

There is, however, an objection, even more weighty, to these operations, and that is the difficulty of securing an absolute asepsis where the necessity of the case forces the surgeon to break an innumerable number of fat cells and to leave

n the abdominal cavity an immense quantity of disorganized free fat. With all that, he has to do with a patient who belongs to a class notorious for their slight powers of resistance to traumatism. For these reasons the outlook of operations, especially on persons in whom there are likely to be multiple wounds of the small intestines, is gloomy enough. I do not mean to say that such cases are to be always considered as inoperable, but that the accumulation of fat must be reckoned among the circumstances unfavorable to operative procedure.

The persistence of great shock, if only it could be distinguished from the collapse caused by internal hæmorrhage, should contra-indicate the operation for the time, but as the differential diagnosis between the two conditions is often impossible, the surgeon will frequently find himself in a dilemma, between the indications caused by a possible hæmorrhage or those caused by a possible condition of shock.

The occurrence of peritonitis, although of disastrous import, should not in itself, in my opinion, contra-indicate laparotomy.

In conclusion I wish to urge upon the profession the consideration of the following propositions, not as dogmas for adoption, but as theories and facts for discussion:

1st. There are many viscera in the abdomen which are practically immovable—so immovable as to forbid operations upon them through the median line. When a gun-shot wound is so located and so directed as to make the injury of an immovable viscus probable, the external incision should be made with reference to that fact.

2d. The course of a gun-shot wound is determined not by chance, but by the operation of immutable laws.

3d. When a gun shot is deflected from its course, it is always at an acute angle, and, when deflected by a very soft substance of little resistant power, the angle of deflection must be exceedingly small. When, therefore, a gun shot passes into the abdominal cavity, the deflection of the ball from the time it leaves the aperture of entrance until it strikes the oppo-

site wall, can not be sufficient to appreciably alter its course.

4th. The initial direction of the ball through the abdominal wall indicates very nearly its subsequent direction through the abdominal cavity. The careful study of the wound of entrance is, therefore, of the greatest importance, and no surgeon should open the abdomen for the repair of visceral wounds without first exploring the wound of entrance sufficiently to make sure of its course through the parities.

5th. The ball, after passing through the abdominal cavity, may be deflected by the bones or soft tissues; but as it, in the vast majority of cases, pursues the remainder of its course outside of the abdominal cavity, these deflections should have no influence in determining the line of incision.

6th. Gun-shot wounds of tortuous course frequently owe their apparent deviations from the straight line to a change in the shape of the abdominal wall subsequent to the shooting.

7th. In general, the course of the bullet through the abdominal wall, prolonged by a line drawn on the external abdominal surface, will indicate the course of the bullet through the cavity if its velocity is great. If at angles of five or of not more than ten degrees with this line, two other lines are drawn on either side of it, beginning at the wound of entrance, we will have represented on the abdominal surface the greatest deflections of which a bullet is capable during its passage through the abdominal cavity. An incision, therefore, along the whole length of the first straight line could not fail to uncover every part of the course of the ball, provided that there has been no subsequent displacement of the injured tissues.

8th. For this reason an incision, beginning at the wound of entrance and prolonged to a sufficient distance in its course, is often the very best which the surgeon can make. This is especially true of such wounds as, beginning at a distance from the linea

alba, pass in a direct line away from that line.

9th. The immovable viscera can be best exposed by incisions made parallel to their long diameters.

10th. When abdominal section is made for penetrating wounds, every organ and part of an organ which could possibly have lain in the path of the ball or weapon should be thoroughly explored by the surgeon, but to

examine an exposed viscera or portions of viscera which could not possibly have been injured would be an error in practice.

11th. The prognosis of wounds of the empty stomach is not necessarily bad.

12th. Large accumulations of fat in the abdominal wall and cavity may sometimes contra-indicate laparotomy for visceral wounds.



PROGRESS IN GYNÆCOLOGY.

ABSTRACT OF THE REPORT OF C. B. WILL, M. D., CHAIRMAN OF THE COMMITTEE ON GYNÆCOLOGY, MADE TO THE ILLINOIS STATE MEDICAL ASSOCIATION.

THE progress in gynæcology during the past year has been essentially in the line of *reconsideration* and *revision*. Whilst, therefore, no event of very striking importance has occurred, judged from the sum total, as well as the practical character, of its presentations, it has perhaps been as prolific as any preceding. Old theories and methods have been overhauled and submitted to the test of comparative results, and new as well as old hedged about by the keenest enterprise and most searching criticism. The dazzling brilliancy of some former discoveries and practices has, as might have been expected, been dimmed somewhat in the light of further investigation, but the result has been, after all, to only give them a mellow, practical hue. Some recognized leaders in the profession have seemed to experience a radical change of view. Whilst Mr. Lawson Tait, for instance, announces with much self-confidence that he can diagnose a case of uterine disorder much better, or at least equally well, by the digital touch alone, or even by simply the history of the case, and that he almost never uses the sound or speculum, Dr. Emmet, not to be outdone, seemingly, goes him one better, to use the vernacular, and declares that for a long time he has not even *owned* a sound. At the last meeting of the American Medical Association a warm discussion was precipitated by the introduction of this subject in the section on gynæcology. A number of leading members stoutly condemned the use of the uterine sound under any circumstances, as entirely useless as a diagnostic agent, and actually criminal, in that it did much injury both mechanically and as a carrier of contagion, and the use of the speculum as well, for purposes of examination.

Such exhibitions are enough, certainly, to make the ordinary medical man stand aghast, and amidst the bewildering array

of gynæcological paraphernalia with which, at the instigation of these same leaders, he has surrounded himself, wonder what it all means, and if progress has not at last turned backwards. In the minds of most medical men the question arises, Why this unseemly haste to appear in the front ranks of the retreating column? Is it because these instruments have been all the time useless? or that these men have from practice become so expert as to be able to do without them? If the former, then it is truly distressing, and augers evil for the future of so-called leadership, for, whilst it is an evidence of scientific candor and zeal to be ready to retreat from a position found to be untenable, or an opinion found to be erroneous, it is not a mark of well-balanced judgment to hastily discard methods which it has required generations to perfect. If the latter, then what can be more reprehensible than for one to try to pull from under the profession, so to speak, the ladder which has served to elevate one to a position of confidence and trust. In the midst of these throes of individual uncertainty, however, the mass of the profession have been going on in the even tenor of their way, realizing their ability and duty, as a whole, to put a check upon the exuberance of their gifted but sometimes erratic *confreres*. They recognize the fact that revision does not mean annihilation, and that everything has a field of usefulness, however limited it may be.

Keeping in mind, then, the guiding stars of reconsideration and revision, it is curious to note the course which thought has principally taken in this branch of medicine and surgery. It is incumbent upon us to follow that course if we would know the points of a practical character developed during that period.

I shall, therefore, endeavor to group under three or four comprehensive head-

ings, somewhat of the principal findings during the past year.

One of the few subjects which have given rise to much investigation and discussion is that of

PELVIC INFLAMMATIONS.

Generally speaking, by pelvic inflammation is meant pelvic peritonitis and cellulitis. At least that is in accordance with the evidence deduced from the current literature of the subject. The question of the etiology of this affection, or these affections, is yet *sub judice*. Many hold that inflammation of the pelvic cellular tissue depends primarily almost entirely upon disease of the ovaries or tubes; that, as Dr. Battey says, "a pelvic cellulitis which gives rise to so much trouble is, in a large proportion of cases, secondary and not primary." This would seem to be largely, at least, the case, for aside from the generally recognized influence of pressure and other injuries in child-birth, much evidence has been advanced to prove gonorrhœa a very potent cause. The constantly accumulating evidence of this latter as an active agent in the production of destructive disease of the tubes, as well as the known laws of septic communicability, would seem to favor this presumption. By far the most fruitful primary source of these affections, however, in the estimation of the writer, is the development of bacteria within the vagina, as a result of the introduction in one way or another of pathogenic germs. There is, as has been stated by a recent writer, a great deal of criminal carelessness in infecting patients by dirty finger-nails and instruments. It is indeed surprising to one who has not given the subject special attention, with what ease and readiness a patient may be seriously infected in this way, and especially during or immediately subsequent to operations in the genital tract. Dr. E. W. Cushing, in a recent communication, very truly says on this subject: "The same principle (that of antisepsis) is to be further applied to pelvic inflammations of other than puerperal origin, and reasoning from certain premises, which may be now accepted as axioms, a system of treatment and procedure is

in evolution for the avoiding of those so-called accidents, by which, after the slightest gynæcological operation, 'takes cold,' and 'cellulitis' develops. Now, 'catching cold,' with a subsequent inflammation of the pelvis, means septic infection.

Cellulitis means either a direct infection of the lymphatics, from the surface laid bare by operation, or, far more frequently, an infection of the endometrium, which passes up the tubes, and sets up a peritonitis. This is happily unusually localized, and may not give rise to suppuration, but sometimes unhappily the process cannot be controlled, the patient dies, and it begins to be pretty hard to persuade the friends that she "caught cold" because the nurse left the window open, or lifted the blanket incautiously.

The immediate cause, or, if one will avoid that word, the constant antecedent and inseparable concomitant, of all such inflammations is an infection with living bacteria or germs, which, differing in their nature, and falling on soil more or less favorable, give rise to the greater or less severity of symptoms; from a light shiver, moderate fever, and local hardness, all the way to an explosion of peritonitis or septicæmia with speedy death.

At present we can do very little to check, or control, such processes when they have passed into the lymphatics or the fallopian tubes. The graver cases are called septic, the lighter inflammatory; but the nature of the process is the same as in any case—a bacterial infection.

We do not always know at first when cellulitis is present, and "in every stage," says Dr. Jackson, "we feel doubt as to whether this disease or some other is present. Sometimes, even when it gets on to its later stages, we have doubt." Emmet, in his paper before the American Gynæcological Society, says: "Inflammation of the connective tissues between the rectum and vagina behind, and in front of the uterus, bladder and ureters, is generally accompa-

nied by phlebitis, and is a frequent consequence of the pressure made during childbirth, but it is a matter of common observation that this form of pelvic inflammation tends rapidly to resolution, and the tissues soon regain their healthy state if septic poisoning does not take place. With the introduction of septic matter from any source, the lymphatics become inflamed and the peritoneum is rapidly involved." A report from the clinic of Sanger, of Leipsic, by Dr. H. Bigelow, of Boston, says as to a differential diagnosis that peritonitis is frequently found unassociated with any inflammation of the connective tissues, but cellulitis generally involves the peritoneum, and that in general those exudates which lie behind the uterus are of the peritoneum, whilst those on the sides, which take origin in the connective tissues of the liamentum latum and which may stretch from the fassa iliaca to the kidney, are cellutic. Dr. James B. Goff, in a paper before the Alumni Association of the Women's Hospital, N. Y., voicing the sentiments of a large number, says that "in the light of the knowledge yielded us in late years, and the findings during laparotomy, he has come to the conclusion that pelvic cellulitis has been dethroned from the prominent position which it has held in uterine pathology, and that in its place must be substituted salpingitis and perisalpingitis, oöphositis and peri-oöphositis, peri-uterine adenitis, peritonitic bands and adhesions. When cellulitis as such occurs, it is acute in its nature and harmless in its action, for it leaves no trace behind such as may be detected by the pathologist. The small indurations around the uterus, deemed by Emmet and others to be evidence of cellulitis, have been unquestionably shown to be the result of peritonitis. Large exudations around or to one side of the uterus are due to plastic peritonitis. These exudates may of course either be absorbed or break down into pus, in which latter event we have pelvic abscess."

As to the treatment of these affec-

tions during the acute stage nothing new seems to have been offered, the, to some, doubtful remedial influence of opium, quinine, hot douches and poultices being allowed the field.

The treatment of the results of acute pelvic inflammations has, however, met with the wide-spread and careful consideration which it unquestionably deserves, although to the true scientist and conservative practitioner the necessity for it seems a melancholy commentary on the boasted therapeutics of the day. Abscess is one of the most frequent conditions or results calling for interference, and it is at the same time the most urgent. The means of diagnosis and treatment are measurably intertwined. The instrument of the former is oft times the agent of the latter. The aspirator is now generally considered a useful aid in diagnosis, as well as curative agent. Says a recent writer: "When a large mass bulges down behind the uterus and cannot be felt in either hypogastrium, we may affirm that it is not an abscess in the cellular tissue. It may be pus within the peritoneum, but usually it is the distended fallopian tubes which are felt. Here aspiration can only harm," and this is considered almost the only exception. "Laparotomy and removal of the tubes are then, of course, requisite." Evacuation of the pus is, of course, the only curative measure in pelvic abscess; the question being only how best to accomplish it in a given case. Dr. W. H. Byford thinks it should be done by laparotomy only when supra pelvic or intra-peritoneal. Dr. Christian Fenger, of Chicago, in a discussion of this subject before the Gynæcological Society, referred to the condition when a communication exists between an abscess and the intestinal tract, and remarked that evacuation of the pus into the bowel is sometimes followed by spontaneous recovery; but, as a rule, such condition is extremely dangerous, for the abscess cavity is constantly being infected with septic material from

the intestine. He quotes as authorities Pean, Schröder and Emmet, and concludes that under such circumstances the patient is in great and constant danger of dying, and therefore an operation should be done, if possible, to provide for drainage of the abscess, and that can best be done by laparotomy. In commenting on Dr. Byford's criticism and suggestion that drainage under such circumstances should be secured through dilatation of the rectum, or rather sphincter ani, Dr. F. said that he had never heard of the idea before, but that as such openings were often narrow and tortuous, and the neighboring organs immovable, drainage could not then be satisfactorily effected, and to cut into the fistulous tract in that locality would be dangerous in the extreme.

In a letter to Dr. Jaggard, of Chicago, Dr. Paul Mund writes of this question: "I do not agree with Prof. Byford's rectal treatment, as a rule, and certainly have not in my quite extensive experience found true laparotomy required to evacuate and drain a pelvic abscess. I mean opening the peritoneal cavity. Neither has my experience been that of Dr. Dudley, who says that the mortality, from abscess opening into the rectum, is great."

Dr. H. T. Byford had, however, effected a cure in that way, and your reporter can add his testimony to its efficiency in at least one case, a few months since, which it is not necessary to report in detail, but which presented an opening about two and a half inches above the anus, and through which a catheter was introduced and drainage effected.

After the dilatation of the sphincter ani no special difficulty was experienced either in finding the opening or introducing the instrument. Tolerably strong injections of carbolic acid solution were used daily, and although some considerable irritation of the rectum was produced by the manipulation, the abscess cavity gradually closed up and the frequent irregular periodic discharge en-

tirely ceased, and I believe the patient to be well.

As one of the best expositions of the operative procedures looked upon with favor at present, and on account of its succinctness, I append the following *resume* and review of a paper by Dr. Imlach (*Pacific Medical and Surgical Journal: Journal of Obstetrics*):

"The writer takes the ground that an abscess in the pelvis, more than in any other locality of the body, should be opened, emptied and drained, because in the pelvis a collection of pus is not likely to remain localized, but may burrow freely, burst into the cellular tissue, perforate the peritoneal cavity with fatal result, or empty into the bladder or rectum. These possible results it should be aim of good surgery to prevent by free incision and drainage. It should always be remembered, however, that to cure a pelvic abscess, drainage is not always necessary. Aspiration will frequently suffice. (Two instructive cases are recorded where the abscess was exposed by laparotomy and then aspirated, and cure was immediate and permanent.) When drainage of the abscess is aimed at, the peritoneal cavity ought not to be opened. In suitable cases, Imlach considers it safe to open up the inguinal canal, pass a probe along the swollen round ligament into the abscess, insert a glass or rubber drain-tube, and thus a large cavity may be drained without fear of peritonitis. Where an abscess seems to point in the inguinal region, its tendency is not to burst, but to extend toward the anterior iliac spine. Constant poulticing will frequently not make such an abscess open, but the incision just described will efficiently drain and cure the case. (Cases where this method was resorted to are noted, and in one the result was satisfactory, although unsuccessful aspiration *per vaginam* had been tried.) In case of an abscess occupying a large area of subperitoneal tissue, and reaching to the ribs, an incision above the anterior superior spine will shorten the suppurative process. Such an incision may be extended inwards along Ponpart's ligament, or outwards above the iliac crest. By such an incision likewise

perityphlitic and psoas abscesses are drained. Through only a small incision a large area may be drained. Reference is then made to aspiration *per vaginam*, as also *per rectum*, an instance of the latter being recorded as ineffectual, and followed by laparotomy and eventual recovery. As for the indications for aspiration, Imlach makes no positive assertion. If the aspiration fails, it is better to make a free opening at once. He has but a limited confidence in the aspirator, but yet thinks that where harm has resulted from its use it is usually because the needle has been introduced into an ovarian or tubal abscess—'a procedure of infinite risk and never ultimately successful.' 'A free vaginal incision over the most prominent part of the tumors with (or without) insertion of the finger and breaking up of adhesions has been recommended.' 'I must confess I prefer almost any other method. The tumors which, by their vaginal prominence, without adominal swelling, suggest this treatment, are either pelvic hematocules or other tubal disease, and to make a free opening into them through the vagina is to court fatal peritonitis.' The writer (E. H. G.) then adds: "Herein Imlach, we believe, is in error. A pelvic abscess may bulge posteriorly to the uterus and not be felt through the abdomen, and still be safely opened, the cavity curetted, if need be, and the opening enlarged by the finger. See, in this connection, Mundé, on Pelvic Abscess. *American Journal of Obstetrics*, 1886. We further believe that free opening, evacuation and drainage of an hematocle *per vaginam* is by no means bound to result in fatal peritonitis. If the blood effusion be encysted, whether it was originally intra or extra-peritoneal, matters little; provided it present distinctly in the vagina, it may safely be opened, cleaned, and, if need be, drained. As for the expectant treatment of pelvic abscess, Imlach does not favor it, for in the face of such treatment the patient's health is apt to become permanently injured.

"The expectant treatment lives not on its own successes, but on the occasional failure of surgery in tuberculous

subjects. By early opening of the abscess, caseation of the lumbar lymphatic glands may probably be prevented. When opening is long delayed speedy death is inevitable. Another comprehensive subject which has kept the profession on the qui vive for the twelve months just passed, as well as the preceding, is that of

REMOVAL OF THE UTERINE APPENDAGES.

About this subject, more, perhaps, than any other, there prevails a sentiment of mistrust and apprehension. That the so-called "Tait's operation," or its modifications, has been abused, no one will care to dispute, and the tide of criticism has turned strongly in upon it. That the operation has frequently been done unnecessarily, even by those who can show brilliant records as operators, is held by the mass of thinkers in the profession. The excuse of many others who have essayed the operation can be considered little short of the novelty of the proceeding. There seems to be a sort of weird fascination about it which attracts men beyond the dictates of their better judgment. That there is a field for the operation would seem now to be beyond question, but that it is far more closely limited than the practice would seem to indicate is equally true. Dr. T. A. Emmet, in a recent paper, says: "The average success in abdominal section is not equal to the average danger to life," and concludes as follows: "I believe that the operation is practiced too often, even by those who have the smallest death-rate, and I predict that five years will not pass before it will be necessary to offer an apology when its performance is suggested. The operation doubtless fills an important place in gynæcological surgery, but its usefulness must be more closely defined, and its practice greatly restricted, or the good name of the profession will surely suffer in the future." Dr. Joseph Price, of Philadelphia, claims that Mr. Tait does not guess at conditions, and resort to abdominal section for diagnostic purposes as recklessly as is generally supposed, and through which statements a world of mischief has already come. Tait says himself, on this

subject: "Save when the seat of such organic disease as will explain genuine suffering, the uterine appendages ought not to be removed, and that those who attribute all the pelvic aches and ails of women to the ovaries and tubes, and rush to remove them, are dangerous people."

It is of the utmost importance that all cases which come under our notice should receive a more rigid examination, to the end that diagnostic signs of a more positive character be discovered, and make our interference more a matter of scientific certainty. A correct diagnosis is to-day the prominent factor in solving the problem of abdominal section in any given case. Now and then, during the discussions of this subject during the year, a point or two of diagnostic value has been brought out. In a discussion of this subject before the Obstetrical Society of Philadelphia, the fact was pointed out that a very important symptom in disease of the tubes is frequently a stillbirth of bloody grumous material per uterus and vaginum, which is regarded by the patient as a prolonged menstrual period. This undoubtedly flows from the tube, and is altogether analagous to the free purulent discharge from the tubes of pyosalpinx, and it might be wise to catheterize the tube and dilate and endeavor to relieve a case of hemato or pyo-salpinx in this way if the discharge exists in sufficient quantity to lead to a suspicion of a patulous uterine orifice.

A further aid to diagnosis may be found in the history of the case as to the presence at any time of a gonorrhœa, as it is pretty well established that gonorrhœa is a very frequent source of chronic and destructive disease of the tube and ovary, especially pyo-salpinx.

Dr. Howard Kelly places his reliance regarding diagnosis entirely in a skilled bimanual examination, by which he always accurately maps out all the peculiarities of the case before operation. If there is rigidity and resistance, it is necessary to etherize, but he has yet to see the case, when the presumptive signs were those of tubal and lesser ovarian disease, where the structures could not be picked up between the two hands and

outlined. Introducing the finger as high as possible, by forcing the hand well under the pubic arch, and carrying the sensitive pulp up against the post fornix or either lateral fornix, and then playing up and down with the other hand pressing on the abdomen, and creeping a quarter inch at a time without ever fully relaxing, and letting structures in between roll through the two fingers, and in case of an ovary, running round its whole periphery, or of a tube, tracing it up to the cornu uteri and down into the retro-uterine pouch, where it usually terminates, gives often most surprising results, and would doubtless, if universally carried out, change hundreds of diagnoses of leucorrhœa, endometritis, and flexions with adhesions, to the far more serious ones of pyo or hemato-salpinx."

Dr. W. G. Wylie, of New York, in a recent report, says on this subject: "Repeated attacks of local peritonitis, or a constant burning pain over the appendage, which is at times rendered rather worse than better by any form of local treatment, is perhaps the most reliable indication that removal is the only way of giving relief."

As regards the *technique* of the operation for removal of the uterine appendages, nothing has been offered that physicians are not familiar with in connection with the general subject of laparotomy, except, perhaps, the use of hot water within the peritoneal cavity to prevent shock. In the report above referred to, Dr. Wylie, in the accuracy of whose observations and judgment the writer has great confidence, gives an account of his use of hot water in this connection, and his experience on another point or two, in the following statements:

First—That hot water cannot only be safely used to wash out the peritoneal cavity, and that it is a simple and efficient hemostatic for oozing the points too numerous and small to tie; but that in prolonged operations, and immediately after the operation, free irrigation of the peritoneal cavity with water at 105° to 110° is a powerful and efficient agent, it lessening, if not preventing, the effects of shock. Towels wrung out in hot

water have been used to protect the intestines when turned out of the cavity; but I do not know that hot water irrigation of the peritoneum for shock has ever before been suggested. The temperature of the hot water must not exceed 110° or it may cause shock.

Second—That the tympanitis and vomiting and other symptoms supposed to be due to septic peritonitis after laparotomy are best overcome by enemas, and if these fail, by a quick purgative. That in these cases, at least, the bowels should be moved, not kept constipated, as has been generally practiced. That it is probable that in many cases the persistent and exhausting vomiting may be the direct result of intestinal obstruction, the result of bands of adhesions constricting the intestines. For a long time I have seriously doubted the existence of septic peritonitis in some cases where the vomiting preceded the rise of temperature and other symptoms of sepsis. By experience I found it best to move the bowels whenever indicated by tympanitis or vomiting, even during the first twenty-four hours after the operation—of course making a distinction between these symptoms and those due to the effects of ether. The vomiting from ether is likely to be preceded by a marked nausea, and is usually violent and gagging in character, while that from obstruction is passive and more like eructation. The quantity vomited is large, and at first brownish colored, and attended with extreme exhaustion and marked tympanitis. Without doubt the opium treatment taught by Dr. Alonzo Clark has proved to be the best plan for limiting local peritonitis, and when carefully carried out may prevent death in some cases of general peritonitis; but I am certain that it is not best suited for septic peritonitis following laparotomy. I usually give enough opium or morphine to relieve pain and restlessness, and keep the respiration down to 16, or even 12 in some cases. But when tympanitis or eructive vomiting begins, I at once move the bowels by turpentine or oxgall enemas, or by a seidlitz powder or Rochelle salts.

I took the hint from a remark of Mr.

Lawson Tait that a brisk purgative would cure septic peritonitis, but the method of effecting it and the explanation as to preventing intestinal obstruction are my own.

Much interest has been manifested during the past year on the subject of tamponade of the vagina for the treatment of various diseased conditions of the uterus and adnexa. The "new departure" in this line of Dr. Engleman, of St. Louis, described by Dr. J. H. Etheridge at the last meeting of this society, has been since used with gratifying success by the latter, who has, however, substituted "antiseptic wool" for the cotton used by the former, and finds it to be of much greater utility for every purpose for which the tamponade is practiced. The dry dressings thus applied, your reporter, too, has found to be of great value in the treatment of not only vaginitis of obstinate character, but those distressing cases of vesical irritation arising therefrom, as well as from depression of the weighty uterus and appendages, and in restoring the pelvic circulation in cases of general engorgement, thereby relieving and promoting the cure of congestive and chronic inflammatory trouble and misplacements. On this subject Dr. Thornton Parker, of Newport, R. I., has the following to say: "For prolapsed and sensitive ovaries, for the treatment of prolapsed uterus, for many forms of misplacement, and in cases of leucorrhœa, marine lint is much preferable to absorbent cotton, and keeps sweeter and cleaner longer than any other appliance. The support it affords and the sense of comfort it induces make it very acceptable to patients. I apply it always in a ring form, introducing it through the speculum. Where a large pessary is indicated, as in prolapsed uterus, it must be introduced without the speculum. The oakum never irritates, and is always free from the odor following the use of any other pessary or of absorbent cotton. The oakum pessary not only ab-

sorbs and disinfects the vaginal secretions, but does not lose its place, and continues to afford support until removed. This is not the case with absorbent cotton, which is very objectionable in most instances. In cases of anteversion or retroversion as well as in cases of prolapse, the oakum pessary will be found superior to the hard or soft rubber pessary. The oakum is not only an excellent support, but possesses healing properties when applied to the diseased mucous membrane of the vagina. I usually saturate the

oakum pessary with *boracine*. This improves the wholesome action of the pessary and permits its being retained for a much longer time.

The following periodicals were consulted in making out this report: *American Journal of Obstetrics*; *Journal of the American Medical Association*; *New York Medical Journal*; *Medical Record*; *Lancet and Clinic*; *Medical News*; *New England Medical Monthly*; *Medical Analectic*; *London Lancet*; *St. Louis Medical and Surgical Journal*.



CONCERNING MYXÆDEMA.

ABSTRACT OF REMARKS BY PROFESSOR RUDOLPH VIRCHOW BEFORE THE BERLIN MEDICAL SOCIETY.

[Translated by Professor Elbert Wing from the Original Report in *Deutsche Medizinische Wochenschrift*, No. 6, 1887.]

PROFESSOR VIRCHOW had this subject assigned for discussion, not so much because he personally had a great number of observations to report, as for the reason that the question had not received that amount of attention in Germany which its importance merits. The Clinical Society of London appointed a commission to investigate this disease, which reported, toward the close of October, 1886, 110 cases. Since that date Riess, in Germany, has reported a case which he previously observed, and recently, and in consequence of that report, Erb has reported two cases which were under observation in his clinic. As in the majority of the English cases, these three are without autopsies, but they show that such cases occur among us, and that we must begin to take part in the work which such an important subject demands.

Until recently the thyroid gland has been classed among the so-called blood glands, not so much because a great deal was known of its influence upon the blood, as because it was concluded that so large an organ must have an important influence; and since the gland has no duct, it was assumed that its product passed through the blood, and so the thyroid was compared not only with the spleen but also with the thymus gland. However, when a fundamental investigation of the histology of the organ was made, it was quickly seen that there were essential differences between the thyroid and lymphatic glands, as samples of which the thymus gland particularly, and the spleen also in a certain sense, are considered.

There is not the least analogy in any of the lymph glands, to the large alve-

olar spaces which in the normal thyroid gland are almost filled with cells. Professor Virchow had formerly instituted a parallel between the tissue of the thyroid gland and the cortical layer of the suprarenal capsule and the hypophysis cerebri (pituitary body). There are analogies in structure between these three bodies, and they are particularly marked between the hypophysis and the thyroid.

Recently one of the most acute observers of the younger school in England, Horsley, upon the basis of experimental as well as anatomical investigations, has again advanced the old opinion. He claims that the thyroid gland is a hæmatopoietic organ. Professor Virchow has seen his preparations, and must acknowledge that in the struma of the gland he has seen certain colony-like collections of lymphoid elements which, *cum grano salis*, however, may be compared with the malpighian bodies of the spleen. Horsley is of the opinion that this substance has power to exert some special influence over the mixture of the blood, and he has made countings of the blood from the arteria and vena thyroidea, which have shown an increased number of white blood corpuscles in the vein. Professor Virchow doubts that this is the rule. The quantity of this tissue mentioned is so minimal in the preparations of Horsley that one can find numberless other territories of the body which contain much more lymphoid tissue. When one assumes that colorless blood corpuscles are brought into the circulation from the thyroid gland, it must be only a minimum in contrast with the many other sources from which the blood constructs its elements.

In regard to the clinical aspect of the question, attention was first called to it in 1878 by Ord, one of the physicians at

St. Thomas' Hospital in London. The term "myxœdema" was originated by him. This name is based upon a striking symptom of the disease, a gradual hypertrophy of certain superficial tissues, especially those of the face. A peculiar elastic fullness of the cheeks occurs, and the lips become more and more prominent, and sometimes also the *alæ nasi*. Occasionally the process extends to the neck. In severe cases similar appearances are seen on the extremities. Occasionally appearances occur which have a similarity as to anasarca, with an anasarca which proceeds from above downwards. Myxœdema presents transformations to forms which are described as pachydermatous, and it has really happened that Charcot gave the name "*cachexie pachydermique*" to the case which he described.

Ord had the good fortune to be allowed by his patient to excise a piece of the skin, and later an autopsy was held, by means of which it was thought the nature of the disease was discovered, since, in contrast to the watery fluid of ordinary dropsy, which contains a moderate quantity of albuminates, a fluid was found which contained mucin. Now ordinary fatty tissue has the property in many cases, of undergoing a change into a gelatine-like mass, in which mucin also occurs. This condition is found in the human body in cases of atrophy of the fatty tissue, in which through other circumstances, a reduction in the volume of the tissues is prevented. Professor Virchow, therefore, at first concluded that the same thing occurs in myxœdema, a metaplasia of subcutaneous fat with a transformation into mucous tissue. However, since during a recent sojourn in London, he has had an opportunity to examine the preparations there, he thinks his first conclusions are incorrect. In the discussed cutaneous and subcutaneous sections there is a marked growth of the connective tissue, consequently the theory of a passive process is excluded, the process is of an irritative character, it is allied to the new formations, and resembles in certain respects the inflammatory processes. It is remarkable that this process is almost completely lacking upon the surface of

the skin, but the deeper layers of the skin and the upper layers of the subcutaneous tissue are involved. However, it is not the fat cells of the subcutaneous tissue which show the hypertrophy, but the bands of connective tissue which penetrate between the lobes of fat. This process confirms, to a degree, the theory of the old authors expressed in the name *Leucophlegmasia*, and it approaches in fact the *Pachydermia* in Charcot's sense, in which such a hypertrophic process of the sub-cutaneous tissue plays a prominent part.

The preparations shown Professor Virchow in London, were not able to demonstrate where the mucin is present. When one looks carefully he can see numerous processes of new growths in the tissue which belong to the connective tissue, with the appearance of the growth of mucin. Professor Virchow is therefore not entirely persuaded that the growth of mucin in myxœdema plays so important a part as the name implies. In this connection the researches of Horsley have indeed produced further discoveries. He extirpated the thyroid gland of monkeys, and according to his declaration, and according to the analysis of Halliburton, a chemist exceptionally qualified, in his (Horsley's) opinion, there resulted in consequence of this procedure a condition, called by him, mucinoid, in which the blood contained mucin; there resulted therefrom a sort of mucinous dyscrasia. While the blood usually contains no mucin, he found, in the blood of a monkey which lived 55 days after the operation, 0.35 per thousand, and in the blood of one which lived 49 days, 0.08 per thousand.

Horsley further found that after extirpation of the thyroid gland the quantity of mucin furnished by the salivary glands was greatly increased, and that the parotid gland produced a secretion which contained more and more mucin. The skin, tendons and muscles, and the tissue of the parotid and submaxillary glands themselves, were examined, and in all cases an increase of contained mucin was found.

Horsley therefore draws the conclusion that the thyroid gland is a kind of

regulator of elementary changes, and especially controls the transformation of certain elements in the final disintegrative processes, which, when it is removed, ceases, and now the albuminates remain in a state of mucin, and do not proceed to the final disintegrative processes. If these researches, that is, the chemical researches and all that belongs with them, are confirmed, there will thereby probably be afforded an explanation of the nature of the swellings which appear upon the outer parts of the body. One must however conclude that the swelling is not, as Horsley himself seems to think, a simple condition of retention, but also an active irritant process.

But the manifestations of myxœdema ever present only one link in the chain of phenomena of the disease, and which is indeed upon the first glance the most striking. The list of other manifestations is still more impressive, and among these are those of a purely nervous nature. Sir William Gull had, five years before Ord, described five cases occurring in women, who during life were presumed to be in a cretinoid condition. It is hardly doubtful that these were cases of myxœdema. The cases observed since that time have shown, that while the external appearances of the affected individuals change in a characteristic manner, a number of changes appear in the nervous system, especially in the way of mental ability, which, upon the whole, appear to be those of depression, and which occasionally lead to complete idiocy. The affected individuals remain in a peculiar condition, take no interest in their surroundings, have apparently no mental ability, when spoken to sharply, reply, indeed, but in a very much altered voice, protruding the tongue, but the reply always indicates a brain working in a normal direction, but very feebly and very slowly. From this list of changes the question comes prominently forward, just what is the relation between myxœdema and other disturbances of a nervous nature. Horsley has observed quite closely analogous conditions in monkeys in which he had re-

moved the thyroid gland. In these experimental researches he endeavored to observe very carefully the course of the manifestations, and as a result divides the course of the disease into three stages. He differentiates first a nervous stage, in which the nervous manifestations are markedly prominent, among which a peculiar tremor and occasionally cramp-like manifestations occur; then, a second, a mucinoid stage; and finally a third, an atrophic stage. In this connection it is to be observed that the animals were able to live only a relatively short time. At once there appeared a marked diminution of the temperature which rapidly progressed, so that it was only by means of artificial heat that the animals could be kept alive longer than the usual period of five to seven weeks. There was an opportunity given, in these animals, to approach nearer the question as to what is the nature of the process in the brain in these cases. The suggestion that there is some nerve connection by which changes in the cerebral cortex are brought about, naturally occurs at once.

The operations were always performed under the strictest aseptic conditions in order to surely protect the greater nerves, and the anatomical investigation of the nerves failed to show anything which could be considered a softening worthy of mention, consequently Horsley concluded that the brain suffered disturbances since the vitiated blood no longer furnished the proper nourishing material.

The question of the relation of goitre and cretinism has from early times been constantly recurring and discussed. And the fact is, that endemic cretinism does not exist anywhere in the world where endemic goitre is not also present. On the other hand sporadic forms of cretinism and of goitre have also repeatedly been observed. And further, we cannot say that goitre and cretinism stand in any certain parallelism in the same individual. The most marked strenuous forms are as a rule associated with integrity of the mental faculties, or at least with no degree of disturbance

bance of those faculties which can be compared with cretinism, and again there are very many cretins who have no marked goitre.

About fifty years ago there was a royal commission in Sardinia which carefully traveled through the goitre and cretin district. It found that among the cretins which they examined 2,011 were not strenuous, while 3,912 had goitre. It is of course not to be denied that the examination in the living is often difficult to make, but still it remains from these observations that in or about a third of these cretins had no goitre worth mention. Also in these cases the necessity of the combination did not exist. Nothing in this relation was more clearly marked than congenital struma. Since cretinism is established during foetal life, one is forced to conclude that when struma and cretinism are present in the same individual, one must find in congenital struma disturbances which indicate cretinism. So far as earlier literature is concerned, and in his own experience (*Geschwülste* III, p. 54) such a combination has not occurred. Nevertheless it cannot be denied that a very common form of cretinism exists which undoubtedly has a very great similarity with myxœdema. In Italy and especially in Sardinia where there is such a large number of cretins, the common people have for centuries differentiated these diseases. The one they call "cretins," from *creta*, chalk, and the others "mar-rons." Professor Virchow has been to the trouble to investigate this terminology, and has concluded, that by the term cretin, the leucophlegmatic cretins are meant; and this form of cretinism has undoubtedly very great similarity to myxœdema.

These appearances resemble another congenital condition, the so-called congenital rachitis, which has no resemblance to the acquired rachitis. Professor Virchow demonstrated two preparations, two new-born children, in which these appearances were present in a marked degree. In both cases

the thyroid gland was exposed, and it was shown, that at least in the case of that child which presented the most marked appearances of myxœdema, the thyroid gland was present in that condition in which one would expect it to be in a new-born child. On the contrary, the second child, which died at a much earlier stage, had an extreme atrophy of the thyroid gland. A complete and original absence of the thyroid must be the greatest exception. Professor Virchow possesses only one preparation in which one-half of the thyroid gland is lacking, but this is by no means an absence of the entire gland. Many children with congenital rachitis—disregarding the disturbances of growth of bone in the extremities—present very marked changes at the base of the brain, which correspond with certain changes in cretins, namely, synostosis of the basilar bones and atrophy of the hypophysis.

A real support for the significance of the reported observations has been won through the recent experience with the so-called cachexia strumapri-va. Just recently Küster has presented such a case to the Society, and the existence of such a peculiar neurotic cachexia can be confidently asserted. Upon the ground of this fact it is already recognized as a necessity in surgery, not to extirpate the entire gland, but to leave at least a part of it. Horsley found that after a partial extirpation, the rest of the gland very rapidly increased in size, and that thus a compensatory hypertrophy occurred.

In this connection Basedoni's disease, the cachexia ophthalmica, with its retroaction upon the heart, the brain and the eyes, is to be remembered.

Professor Virchow closed his remarks with the repeated suggestion, that all of these remarkable processes possess a pressing warning, to keep a careful watch upon the condition of the thyroid gland, also in the general practice of medicine, in order to bring the greatest possible amount of material to the settlement of the question.

THE VALUE OF THE GALVANIC CURRENT IN GYNÆCOLOGY.

BY FRANKLIN H. MARTIN M. D., CHICAGO, ILL., PROFESSOR OF GYNÆCOLOGY IN CHICAGO POLICLINIC.

Electricity, just at present, is receiving that merited attention from the medical profession that all therapeutic measures of great value are in time bound to command. The time is past when a physician of rank can afford to ignore the power for good that is stored away in a well-regulated electric battery. Neither can a physician any longer, who values his reputation for intelligence, be content to give "electrical treatment" in the haphazard manner that has been prevalent among the majority of men until within the last few years.

Electricity has become a known quantity; it can be generated, measured and stored at will. The amount of work that can be *accomplished* by a given current can be figured to a mathematical certainty. It is governed by certain inexorable laws which make it a powerful agent for good or harm according to the intelligence of the one to whose keeping it is intrusted.

In this article I wish to give a cursory glance at what can be accomplished in the treatment of certain gynæcological diseases by the bipolar application of a continuous galvanic current of electricity. I mean by the bipolar method, the use of two electrodes, one from each pole of the generator, arraigned upon the body in such a manner that the diseased portion lies in the line of and constitutes a portion of the circuit.

The following effects are utilized in the bipolar method of applying galvanism; 1st, the local effects of the electrodes; 2nd, the electrolytic effect of the current; 3d, cataphoric action of the current; 4th, anæsthetic effect of the current.

The local effect of the electrodes vary with the character of electrode, the particular pole employed and the density and strength of the current. In gynæcological practice one electrode only at a time, as a rule, is considered the active. As this active electrode is ordinarily placed in the vagina or uterus, it is also

called the internal electrode. This internal active electrode may be either positive or negative, according to indications, and should be composed of conducting metal, either covered with moist sponge, cotton or chamois, or uncovered, as indications (which will be referred to hereafter in detail) may demand. The external electrode, which is usually passive, is for the purpose of closing the circuit in such a manner that the current in passing between it and the internal electrode will traverse the diseased tissue, and is placed upon the integument. This electrode is constructed of material that makes it valuable as a conductor, while it diffuses the current sufficiently to avoid pain. It may be an ordinary flat sponge electrode (Figs. 1 a and b), or a mem-

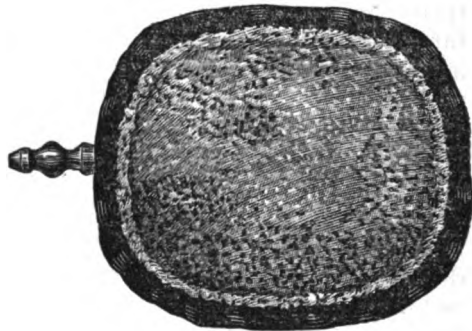


Fig. 1 a.

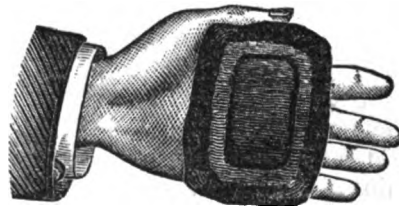


Fig. 1 b. Small flat sponge electrode.

branous electrode on the principle of the one represented in Fig. 8.

The first effect locally on living tissues in which the active positive pole comes in contact when a current is gradually increased in strength, is slight irritation accompanied with redness. As the current is increased the surface becomes contracted and a sharp, smarting

sensation is experienced; when carried still further the surface becomes contracted and hard, and coagulation of the deeper tissues around the electrode takes place; if the process is carried still further, a deep, hard eschar surrounding the electrode is the result. The effect produced here is identical with that obtained by a caustic acid. It is produced by the acid radicals of the decomposed tissues rallying around the positive pole. This pole is therefore called the acid pole.

The first effect locally on living tissue with which the active *negative* pole electrode comes in contact when the current is first rendered perceptible, is an appearance of moisture appearing on the surface of the electrode; as the current is increased the moisture increases, and a slight bubbling of gas is noticed from around the electrode; as the current is further strengthened a white eschar is found beneath the electrode, and as the current is still further increased a deep white slough is produced with an abundant flow of liquid and escape of gas.

The effect produced at this pole is very similar to that caused by caustic alkali. The negative pole is called the alkaline pole. To be able to utilize all the effects of the poles described above, a means of generating electricity of a working strength of from 5 to 500 milliampères should be at hand. In order to obtain uniform results and to guard against accidents in manipulating strong

currents a galvanometer should always be used. See Fig. 2.

Electrolysis, the principal action of the galvanic current that we seek in causing the absorption of pathological tissues, is not a new phenomenon in electro-chemistry. It is the power that a galvanic current has of resolving certain compound bodies into their constituent elements. By this action the more loosely combined elements of certain compound molecules of any pathological tissue that the current may be traversing are relaxed and their deposit accomplished where they will be carried from the system.

The Cataphoric Action of the galvanic current should also be recognized as playing its part in the promotion of absorption. It is by this property that fluids are determined in mass from the positive to the negative pole. This action, in producing an unnatural turgescence of fluid at the negative pole, favors its osmosis into the surrounding absorbents, and thereby accomplishes its removal.

The Anæsthetic Effect of the galvanic current is of great value in gynæcological work. In some as yet inexplicable manner galvanism has a power of relieving pain, especially that variety of pain included under the ordinary term neuralgia.

The pathological conditions which I wish to discuss and to utilize the above points in, and in which I have received marked beneficial results and not a few cures in gynæcological practice, will be included under the following headings:

1. Chronic Cellulitis and Peritonitis.
2. Chronic Ovaritis and Salpingitis.
3. Chronic Subinvolution of Uterus.
4. Chronic Hyperplasia Uteri.
5. Uterine Stenosis.
6. Laceration of Cervix Uteri.
7. Peri-Uterine Hæmatocele.
8. Uterine Fibroids.

Chronic Cellulitis and Peritonitis.

—Under this head I wish to con-

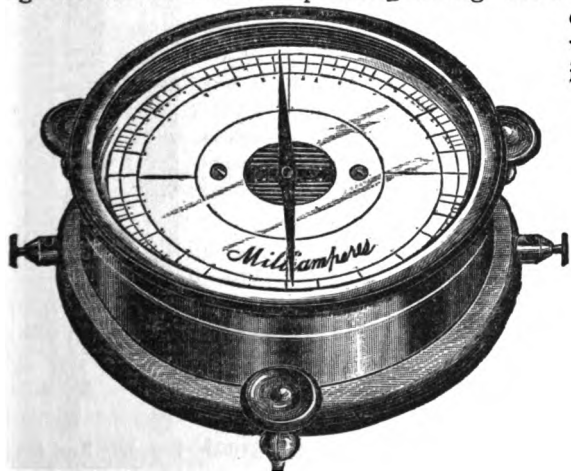


Fig. 2.

sider all conditions in which inflammatory exudates have been deposited in the female pelvis anywhere, caused by a general or local peritonitis, perimetritis, parametritis, or inflammation of the cellular tissue surrounding the uterus and vagina, or in the broad ligaments. Under this head we meet with some of the most aggravating difficulties that the gynecologist is called upon to treat. Among the objective symptoms we find: Hardened, thickened condition of the anterior or posterior wall of the vagina; thickened deposits in Douglas' cul-de-sac, limiting the movements of the cervix; thickened masses between the anterior portion of the cervix and the bladder, with adhesions; thick inflammatory masses laterally between the folds of the broad ligaments, displacing the uterus and interfering with its motion; and in many cases we have a general thickening on all sides, with an immovable womb and tenderness in every direction. The subjective symptoms accompanying these various conditions are as varied as the objective. Besides the many local symptoms, we may have any or all of the organs of the body controlled by the sympathetic nervous system, involved in a sympathetic distress. The local symptoms include all forms of distress that may arise from interference with the functions of the pelvic organs. Constipation, sacralgia, dysuria, dysmenorrhœa, together with acute neuralgias in regions where twigs of nerves and sensitive nerve-ganglia are imprisoned in the inflammatory exudates.

While one or more of these multiform conditions are met with almost every day, we are almost helpless in our efforts to remove these inflammatory deposits and thickenings after they have become organized. True, we can promote absorption slowly, by the use of hot water, iodine, glycerin, massage, etc., and in cases of small deposits we may get absolute cures. It is in just these cases that electrolysis is indicated. Electrolysis, if properly managed, will promote the absorption of these exudates very rapidly, and in my hands has been the means of relieving a great many very severe sym-

toms together with their cause. I have a number of cases which properly come under this head, that I have treated with beneficial results, in not only relieving the symptoms for which I was consulted, but in which I have also removed the inflammatory deposits.

It will be impossible, however, in this one short article to do more than give the description of my method in each variety of cases. In these cases the treatment is applied in such a manner as to include as much of the inflammatory matter in the electric circuit as possible at each *séance*, and is varied so as to include all in the course of two applications. The external electrode is connected with the positive pole of the battery. This electrode should be a flat sponge hand-electrode, similar to the one manufactured especially for me by the McIntosh Galvanic Battery Co., of Chicago (Fig. 1 b). It is a flat metal, the length of the hand, and about two and a half inches wide, covered on its inner surface with sponge, while the outer surface is covered with rubber, over which a wide band is fastened at either end, through which the hand is passed. This electrode is worn on the hand of the operator, and is narrow enough not to interfere with the flexion of the fingers. By means of this the operator can locate the uterus as in bimanual manipulation, and control the direction of the current perfectly. The negative electrodes employed are of two forms and are used on alternating days. One an ordinary rectal electrode of metal insulated with hard rubber to within one inch and a half of the end, and about one-fourth of an inch in diameter, with an olive point (Fig. 3); the other an ordinary vaginal electrode of metal, insulated to within an



Fig. 3. Fig. 4.

inch of the extremity, with the extremity round and about three-fourths of an inch in diameter (Fig. 4). When the object is to promote absorption of pathological tissue some distance removed from the negative pole, it is well to have the metal covered with a moist piece of chamois.

The vaginal electrode is introduced into the vault of the vagina and connected by means of flexible wires with the negative pole of the battery. The hand electrode is controlled by the right hand, as the current is gradually increased a cell at a time by the left hand. The right hand with the sponge electrode, well moistened, is pressed firmly down over the uterus until the patient feels a smart, burning sensation of the skin. Then the vaginal electrode is pressed firmly into the vaginal vault and kept in one position throughout the *séance*. In these positions the electrodes remain and the current is allowed to act for ten minutes. Each alternate day the rectal electrode is used, the metal portion pressed firmly against the thickened anterior wall in such a manner as to cause the current to pass through the hardened exudate. Thus, in the course of a few settings, all portions of the pelvic cavity affected, help to complete the circuit of the battery, and obtain the effect of the electrolytic action.

Chronic Ovaritis and Salpingitis are so intimately connected with all forms of pelvic inflammation that they may almost properly be considered under the head of chronic peritonitis and cellulitis of the pelvis. Ovaritis and salpingitis are so inseparable in their inflammatory diseases that in the late fashionable craze to unsex the women they have both invariably disappeared together.

In conditions of salpingitis and ovaritis, with inflammatory deposits, whatever the cause is, I am convinced great relief can be obtained, as far as the removal of the deposits will give relief, by the judicious employment of electrolysis. I am certain that in a number of painful and serious conditions of this kind I have obtained relief. At any rate, the method is well worth trying before advising the removal of the ovaries. There is very little relief to be obtained by any other non-surgical procedure.

The following case is a well-marked one of the kind, and one in which I think a cure was effected:

A young married woman, twenty-six years of age, with no children, consulted me for a pain in her side, which had been gradually increasing in severity for three years. The pain was constant, with excessive exacerbations for two days before each menstrual period, at which time there was also pain, though not so intense, on the right side. There was tenderness on pressure in the left ovarian region, and if the pressure was persisted in it increased the pain so that it resembled that experienced before menstruation. In the left broad ligament a little body was discoverable which seemed like a prolapsed ovary. It was considerably enlarged and perfectly immovable. The right side was free from tenderness, and contained nothing abnormal. The pain of that side was evidently of a sympathetic nature.

For this patient electrolysis was recommended three times a week. The current that could be borne at the first few sittings was very weak, three or four milliamperes being sufficient to cause increased pain in the parts. The vaginal electrode (the negative) was crowded well up on the left side of the vaginal junction, and the external sponge electrode passed gently over the region externally, so as to include the tender ovary and tube in the circuit. The patient soon became more tolerant to the current, and it was increased within two weeks to as many as fourteen milliamperes. The patient got relief from the first application. The treatment was continued for about nine weeks. After the second week the continuous pain had entirely disappeared, although she suffered some at the first menstrual period. At seven weeks the pain and tenderness had disappeared; her menstruation was free from pain. Upon manipulation the ovary was found much reduced in size, movable, and free from all abnormal tenderness. Treatment was suspended after nine weeks.

Chronic Subinvolution.—This condition is so frequently met with that I have had numerous opportunities of witnessing the

beneficial action of galvanism in its treatment. I have noticed it gradually reduce in size while treating other pelvic conditions with galvanism where it was necessarily brought into the circuit.

The internal electrode used here is a cervical electrode of metal, cup-shaped and insulated except the concavity of the cup (fig. 5). This is introduced in such a manner as to have the cup support the cervix uteri. The circuit is closed by applying the hand sponge electrode over the fundus. A current from ten to twelve milliamperes is tolerated without harm, each *séance* lasting ten minutes.

Hyperplasia of the Uterus.—This condition, which in many respects resembles subinvolution, can properly be considered now. It does not necessarily, although usually, occur in women who have borne children. It may be simply an inflammatory condition of the connective and fibrous tissue in a chronic, subinvolved uterus, or it may be a general hyperplasia of the uterus, caused by the irritation of a lacerated perineum or cervix; or it may be caused from the irritation of repeated menstrual congestions, which is made abnormal by a flexion or displacement of the uterus; or an error of nutrition from a general nervous derangement may be the exciting cause. *Whatever the causes are*, we find a large, tender uterus, a thickened, catarrhal condition of the endometrium, oftentimes an inflamed condition of the cervical glands, with the thick, albuminous discharge welling out, and very often a well-marked abdominal displacement from the sheer weight of

the organ. The condition is one of hypertrophy of the normal constituents of the organ from congestion and inflammation. I have several times seen this condition yield to the chemical effect of the galvanic current when using it in other connections. In a condition often accompanying this I have seen very pronounced results, and it is worthy of mention because of the unsatisfactory results by the ordinary methods of treatment of the difficulty. I refer to *inflammation of the cervical glands*. This disease, with its characteristic tenacious albuminous discharge, every physician has more or less to do with. The ordinary forms of treatment, where cure is accomplished are harsh, and unsatisfactory in the extreme. Destruction of the deep gland tissue by curetting, cauterizing or cutting are the only methods that have heretofore given satisfactory results. These glands can be destroyed, or their condition of chronic inflammation reduced by the effect of repeated applications of a metal bulb of the negative pole of a galvanic battery. I first noticed this condition yield while treating other forms of pelvic trouble with electricity, where it was desirable to pass a metal electrode into the cervical canal. One-half dozen thorough applications of this description, using a bulb electrode similar to those used for stricture of the urethra (Fig. 6), and gradually increasing the size of the bulb, will, I think, cure the most obstinate cervical catarrh. A current of from fourteen to twenty milliamperes can be used without producing any pain. I pass the bulb of the electrode through the internal os at each application.

Strictures of the Uterine Canal I have removed by electrolysis in a large number of cases. It was in this condition, at the suggestion of Prof. De Laskie Miller, of Chicago, that I first used electrolysis. That gentleman had been using it with success for some time before my first attempt. It matters not what the condition is that produces the stenosis, or in what portion of the canal it exists. It has all the advantages over gradual dilatation, divulsion or cutting, that electrolysis has in the treatment of male

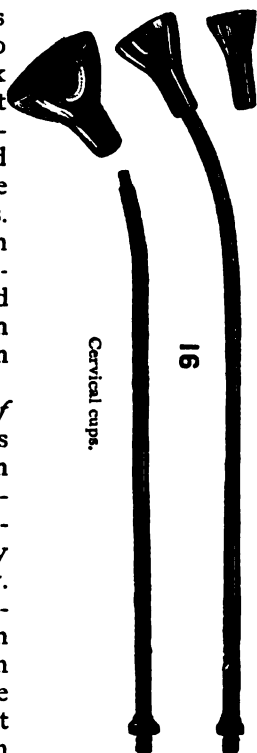


Fig. 5.

urethral strictures over gradual dilatation, divulsion or cutting, viz.: painlessness, permanency and, in cases of gradual dilatation, promptness.

The method of operating on these strictures is very similar to that employed in strictures of the urethra. A small staff of soft metal covered with hard rubber, upon the end of which one of the graduated set of olive-shaped metal bulbs may be screwed, is used for the uterine electrodes. After making out the position of the uterus by manipulation, or by passing a small, flexible metal probe, the staff of the electrode is made to conform with the supposed shape of the canal (Fig. 6). After this a

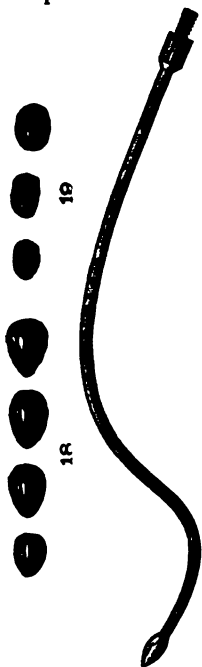


Fig. 6.

flat sponge-electrode, attached to the positive plate of the battery, is applied to the thigh or abdomen of the patient, the internal electrode is passed into the cervix, either through a Sims speculum or a wide bivalve, and while the cervix is steadied with a strong tenaculum with one hand, the electrode is guided by the other into the cervix until it finds its first obstruction, the current is gradually increased, while very gentle pressure is made on the electrode until it passes in the course of the canal all the obstructions. Usually the smallest canal can be passed at the

first sitting of a bulb the size of a No. 7 or No. 8 English catheter. This can be repeated with larger bulbs, if desirable, for three or four times, when it will be found that the canal is permanently enlarged.

Laceration of the Cervix Uteri.—This is a condition which, of course, cannot be repaired by electrolysis. I hope it will not be considered too enthusiastic, however, if I assert that temporary relief can be obtained from the results of laceration of the cervix by the proper use of

electrolysis. The painful consequences following this condition of laceration are due in great part to the formation of cicatricial tissue in the fissure, to degeneration of the mucous follicles, to obstructed circulation in the neck, and to connective tissue changes and a congested hypertrophy.

By experience in just this condition, when the privilege of trachelorrhaphy was withheld, or when from some other good reason I was deterred from operating, I have obtained very gratifying *temporary* results. I emphasize *temporary*, because time enough has not passed since the operations to warrant me in saying permanent. The cervical cup (Fig. 5) is used for the internal electrode in the treatment of these cases, with an occasional application to the canal of the cervical bulb electrode (Fig. 6).

This method of treatment is so prompt in relieving this condition that it is destined to become very popular as a temporary measure, or as a general measure when there are insurmountable barriers to an operation. As a preparatory measure for trachelorrhaphy it surely possesses very superior claims.

Peri-Uterine Hæmatocoele.—Dr. Apostoli recently described a method of treating this condition by means of negative-galvano-puncture, as follows: "The chemical caustic action of the continuous current is utilized in making an opening into the tumors. The opening thus made is, in character, a non-retractile fistula, with tendency to remain open, and with adhesions between the pathological cavity and the external mucous membrane. * * * The advantages of this method are that, on account of the adhesions formed, the danger of opening is lessened, and the cicatrix left by the negative eschar is slight and non-contractile. A further after-effect of this method of utilizing the chemical caustic action of this current is that the nutrition of these pathological cavities is modified, leading to retrograde metamorphosis."

Fibroid Tumors of the Uterus.—While there are many methods described for the treatment of this troublesome malady by electricity, I shall content myself in

this paper to a description of a method that I have pursued for some time with very gratifying success. The method that I refer to is a slight modification of that devised and practiced by Dr. Apostoli, of Paris.

Consideration of Tumors.—I will not go into a long discussion of the history, causes and pathology of fibroid tumors of the uterus, because it does not particularly bear upon the subject before us. However, to facilitate a description of my method of treatment, I will make the old division according to location into: 1, submucous; 2, interstitial; 3, subperitoneal. The nomenclature of this division sufficiently explains itself. To still further expedite matters, allow me to divide these tumors according to their condition into the hæmorrhagic and the non-hæmorrhagic. By hæmorrhagic we will include those tumors that produce from a simple excess of the menstrual flow to the most alarming continuous hæmorrhage. The non-hæmorrhagic will include all others.

In the treatment of these tumors we utilize all the effects of the galvanic current heretofore enlarged upon, viz.: 1, the local effects of the electrolysis; 2, the electrolytic effect of the current; 3, cathaphoric action of the current; 4, anæsthetic effect of the current. With the exception of the first, the local effect of the electrolysis, it will not be necessary for me to dwell upon these points. I wish, however, more specifically to speak upon this point in this connection.

The effect of the positive pole is termed by Dr. Apostoli the galvanocaustic effect of the positive pole. This is an action of a great deal of importance, and from which a great advance is contributed in the treatment of hæmorrhagic fibroid tumors of the uterus. The phenomenon is obtained only by the employment of a very strong current, from 50 to 1,000 milliampère strength, and concentration of this current at the point of contact of the positive pole of the battery to the tissues. This electrode must be of small size, and of some unattackable metal. The effect obtained upon vascular tissues or mucous membrane by thus concen-

trating the current is to produce an eschar. This eschar, however, if the current has been proper, will be found to be simply a coagulation and a hardening of the mucous membrane and the tissues beneath it for some little distance. This process of contraction and coagulation modifies the calibre of the vessels of the circulation so that hæmorrhages are less liable to occur at the point of application; at the same time it does not destroy the circulation sufficiently to produce strangulation and death of the part. There is nothing that will so effectually stop all forms of excessive hæmorrhages or leucorrhœa, without producing a troublesome slough and a subsequent contraction, as this particular application of electricity when made to the mucous membrane of the uterus.

The local effect of the negative pole is the opposite of that of the positive when the current is strong and concentrated. The action of this pole is one of liquefaction instead of hardening and coagulation. Its eschar resembles much that of a caustic alkali.

The Electrodes used in the treatment of fibroid tumors by Dr. Apostoli's method are few in number. Two electrodes are always necessary at every operation. One of these is applied externally on the surface of the body, the other in some form internally. Where powerful currents are employed, such as I have described, the first object is to devise means of conducting them through the parts desired, without producing harm to innocent tissues, or pain to the patient. One pole, the internal, is usually the active one. This is either a sound, that fits accurately the uterine canal, or a pointed electrode which enters a presenting portion of the tumor. This is constructed of unattackable metal, platinum when in form of sound, platinum and iridium when in form of needle. Some means of insulating the vaginal portion of the electrodes must be devised. (Fig. 7.) Needles used in electrolysis should be insulated up to within one inch of the point in order to protect external tissues. After the proper internal electrode has been selected and placed in position, and before

the current is turned on, the circuit of the battery must be closed by applying some form of convenient electrode externally that will give the minimum resistance without excessive pain. This has been one of the most difficult things to accomplish in the use of strong currents. This external electrode should be placed upon the abdomen in as close proximity to the internal one as possible. It should have a large surface in order to diffuse the current. All parts of the surface should conduct equally, and fit accurately into all irregularities of the surface. Dr. McIntosh has succeeded in constructing for me this electrode (Fig. 8). A concave disk of soft metal, of appropriate dimensions, has loosely stretched over its concavity an animal membrane which is fastened to its circumference securely enough to render it watertight. Between the concavity of the disk and the membranes is left a space one and one-half inches in thickness, which is filled with hot water or a saturated solution of chloride of sodium. The electrode is filled through a stopper on the surface of the metal; the connections are also made from this surface.

This electrode, when filled, is applied to the surface of the body so that

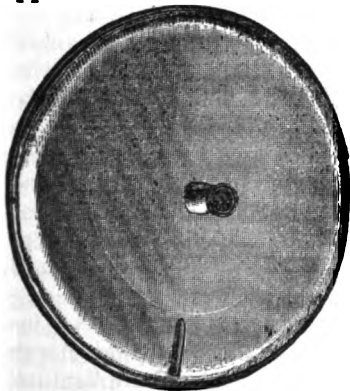


Fig. 8.

its membrane surface is in contact with the skin. It adapts itself accurately to all irregularities, covers a large surface, and causes a diffusion of the current so perfectly, and makes connections so complete, that I have been able repeatedly to use a current of from 200 to 1,000 milliam-

pères, without the necessity of an anæsthetic.

Details of Application.—There are three distinct operations that are called for in the rational treatment of fibroid tumors of the uterus by electrolysis. They vary according to symptoms and conditions. The first that I will consider is for the relief of excessive hæmorrhage. I consider this of first importance because it is one of the most distressing symptoms we meet with in dealing with these difficulties, and a symptom which often baffles every other resource.

I will not go into a description of the different conditions that *may* be present in hæmorrhagic fibroids, but will confine myself to the few conditions that must be present to allow of benefit from this treatment. We have excessive hæmorrhage, which may be continuous or periodic. The hæmorrhage is from the cavity of the uterus. The uterine canal must be accessible to a flexible probe. There must be no acute metritis, peri- or para- metritis present. With these requisites, positive and negative, we may proceed to operate. An assistant, if the patient is reasonably strong, is not necessary. The application is preferably given in the office.

The patient's clothing is loosened, and she is instructed to assume the dorsal position upon an operating chair or table. A speculum is introduced or not, according to convenience of operator, and the direction, size and depth of the uterine canal is ascertained by means of a soft metal probe. A uterine sound electrode composed of pure platinum (Fig. 7), corresponding as nearly as possible with the size of the uterine canal, is selected, and made to conform to the general direction of the canal, as indicated by the probe. This electrode is then introduced to the bottom of the uterus, and the insulating shield is pushed up until it touches the cervix and covers perfectly the intra-vaginal portion of the metal. When the electrode has been satisfactorily applied and connected with the positive pole of the battery, Martin's large abdominal electrode (Fig. 8), properly prepared and attached to the negative pole of the bat-

tery, is applied to the lower portion of the patient's abdomen in such a manner as to bring its whole surface in contact with the skin.

After the electrodes have been securely placed and the connections are found to be perfect, the operator should commence turning on the current. This should be done very gradually at first, in order that the patient may experience no shock. If the patient complains of a dull pain internally while the current is being increased, the operator should stop for a few seconds, and he will often find that the pain will cease, after which the current can again be increased to the desired strength without excessive pain. At the first not more than a 50-milliampère current should be used. If the patient bear this well, it should be increased at each succeeding operation until a strength of from 100 to 500 milliampères is obtained. The first operation should last about five minutes, and if well borne the succeeding ones can safely be lengthened to ten or twelve minutes. In finishing the operation the current should be decreased in strength a cell at a time, very slowly, until it is entirely excluded. After the operation the patients should remain quiet for half an hour, when they can return to their homes, with instructions to keep very quiet for at least twenty-four hours.

This operation has two effects. It checks hæmorrhages, and reduces the size of the tumor. The local coagulating effect of the platinum electrode upon the inner surface of the uterine canal checks the hæmorrhage, and the electrolytic effect of the powerful current through the tumor favors its absorption. A number of repetitions of the operation are necessary to control severe hæmorrhages. It is impossible, at one sitting, for the internal electrode to come in contact with all the surface of the canal, no matter how much pains may be taken to make an accurate adjustment. Nothing but repeated operations can accomplish this. Unless the current is too strong there will be but very little subsequent sloughing at the place of contact of the positive pole.

If troublesome sloughing *should* occur after an application, a somewhat weaker current should be used afterwards. It must be remembered that coagulation, and not cauterization of the tissues is the point sought.

The second operation to which I will call your attention is for the reduction of tumors that have grown in such a manner that they have distended or occluded the uterine canal so that it will not admit a sound electrode, and thereby renders intrauterine *treatment proper* impossible. In these cases an *artificial* canal should be established in the obstructing portion of the tumor by means of negative galvano-puncture entering the tumor from the cervical canal.

For this operation the patient is also placed in the dorsal position. The position of the cervix is ascertained, and by aid of a proper speculum a sharpened probe of platinum and iridium is thrust a safe distance into the center of the presenting fibroid. The vaginal portion of the electrode is properly insulated as in the other operation, and is then connected with the *negative* pole of the battery. The abdominal electrode is attached to the positive pole and applied as for the previous operation, with proper precautions the current is gradually turned on until the desired strength is obtained, this being as high as 150-milliampères, often without pain or harm to the patient. Contrary to ordinary expectations, the *pain* produced by this operation is not sufficiently severe to require an anæsthetic, and with the exception of the first *séance*, when the new canal is established, the succeeding treatment is no more disagreeable than the ordinary use of the internal electrode in the uterine canal. Before any internal needle or puncture operation a vaginal injection of 1 to 5,000 bichloride of mercury should be given, and repeated each day as long as the treatment is continued. An interval of about five days should elapse between the first and second application, and the duration of the *séance* should be from five to ten minutes.

The first effect derived from the employment of this method is the establishment of a new channel to take the place

of the distored and obstructed uterine canal and by which subsequently the tumor will be treated. The second effect is the direct electrolytic action of the current upon the growth. The channel left after the withdrawal of the probe is somewhat larger in diameter than the electrode itself and will remain for a number of days penetrable to the probe. There is but slight suppuration from its surface, but should there be any considerable hæmorrhage from the artificial canal, one application of the electrode with the current reversed, making the positive pole the internal, will give relief. One imperative point in these operations is the proper selection of poles to be employed. The immediate effect of the negative pole is to liquefy the tissues with which it comes in contact, like a caustic alkali, and it should be selected for the establishment of a canal, while the effect of the positive pole is to coagulate and harden tissues coming in contact with it, like a caustic acid, and it should always be employed to check hæmorrhage either from the artificial canal or from the natural uterine canal itself. Therefore, for the rapid reduction of a tumor the negative pole is decidedly preferable, and should always be applied unless the presence of hæmorrhage demands the use of the positive.

The third and last operation to which I will call your attention is the extra-uterine galvano-puncture, or the needle operation proper. Tumors that call for this form of treatment are those that are not amenable to the other two forms already considered.

This variety, usually of a subperitoneal type, often pedunculated, can be reached either by puncture through the vaginal wall, using great care not to injure the bladder or other important organs, or, where this is not feasible, by puncturing through the abdominal wall. Everything else being equal, the needle should be introduced into the tumor through the vagina, because if it is at all possible, the tumor lies in contact with the vagina; therefore the tissues that it is necessary for the needle to traverse are unimportant, while the abdominal wall with its fat, muscle, and peritoneal layers is

too formidable to penetrate even with a needle unless actuated by absolute necessity. If the puncture is to be made through the vagina, a thorough vaginal injection of the bichloride solution should be employed, and for this operation, unless the patient has more than ordinary fortitude, an anæsthetic should be administered. For this purpose I employ, as preferable, the mixture of equal parts of alcohol, ether and chloroform, on account of its prompt action and transient effects.

After it has been definitely determined that this operation is the only alternative the patient is placed in the dorsal position, and all instruments being in readiness, the anæsthetic is pushed promptly to a surgical degree and then entirely withdrawn. A suitable speculum is introduced, and a needle with a proper curve and insulated with hard rubber to within one inch of the point is thrust through the vaginal wall into the tumor. (Fig. 9.). The position of the bladder should have been ascertained by means of a probe or catheter, before commencing work. When the needle has been satisfactorily adjusted the speculum is carefully withdrawn and the needle connected with the negative pole of the battery. The same external electrode should be adjusted with the same care, and in the same manner as in the other operations described, and connected with the positive pole. The current is now gradually turned on until a strength as indicated by the galvanometer is reached of 500 to 1,000 milliampères. In the meantime the patient is allowed to come out from the influence of the anæsthetic, which usually occurs without any struggling; a peculiarity of the anæsthesia by the A. C. E. mixture, which makes it very desirable for this work.

This operation should last for about eight minutes the first time, Fig. 9. and subsequently, if it is deemed desirable, a longer time can be given. When the operation is terminated, and the current has been gradually with-



drawn, the needle will be found loosened, and its removal is accomplished with ease and very little pain.

The abdominal operation is performed then connected with the negative pole of the battery. The other electrode, the same variety as described in the other operation, should be placed upon

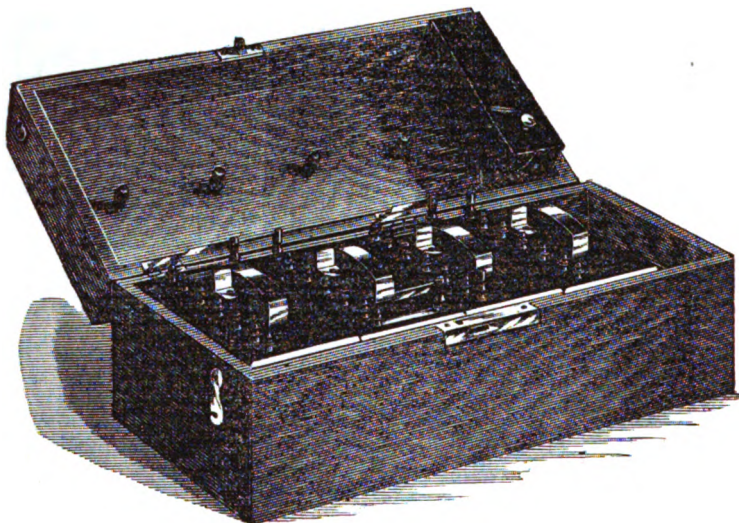


Fig. 10.

where the tumor is of the large subperitoneal variety, that cannot be safely attacked from the uterus or vagina, and where the tumor rises above the cavity of the pelvis and is in contact with the

the abdomen in close proximity to the needle. The current should be 300 to 1,000 milliampères strength, and the duration of the operation ten minutes.

Battery.—The current of electricity

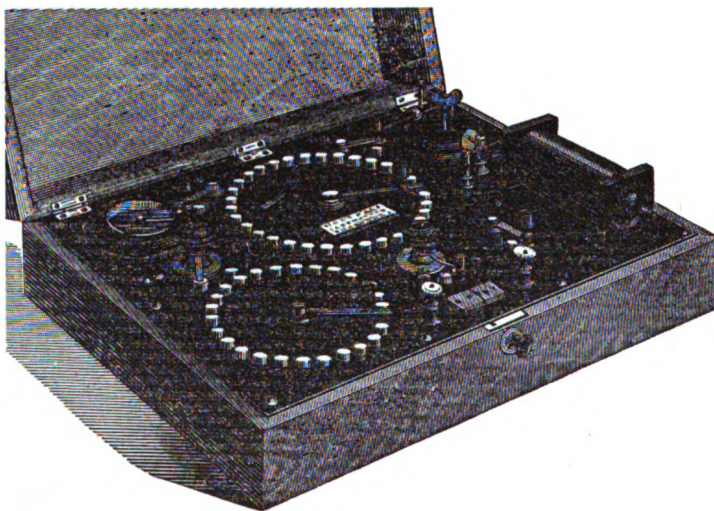


Fig. 11.

abdominal wall. Here, after necessary antiseptic precautions have been carried out, the needle is thrust through the abdominal wall into the substance of the tumor at its most prominent part, and is

employed in gynæcological work should be uniform and without interruptions. Any means of generating electricity which will be practicable and at the same time answer the above require-

ments will be suitable for our purpose. I know of nothing better than some form of the chemical battery. For the ordinary purposes, where a working current required is not more than 50 to 75 milli-ampères, some form of the ordinary zinc and carbon cell with a solution of dilute sulphuric acid and bichromate of potash is suitable. The battery that I employ for this work is the one manufactured by McIntosh & Co., of Chicago. (Fig. 10.) It combines the advantages of many others, is simple in construction, easily cleaned and recharged, and combines a good faradic current with the galvanic.

This battery is portable. For accomplishing more decided work and for a stationary battery in the office, the gravity cell, the diamond carbon, or the Lés Clàuchi cells are recommended. I use the ordinary crow-foot gravity cell. These should be connected with a switch-board, arranged in a manner that any portion of the battery can be used at will. For office battery I use 115 gravity cells, which are stored in a convenient closet and connected with a McIntosh switch-board (Fig. 11) by means of a cable of wires.



THE CURE OF FISTULA IN ANO WITHOUT OPERATION.

BY E. ANDREWS, M. D., L.L.D., CHICAGO, ILL.

WHILE preparing the materials for a work on "Rectal Surgery" some interesting facts come to my knowledge. The general impression among physicians is that nothing will cure a fistula except a surgical operation; and, indeed, this is true with regard to many fistulas. But it is equally true that a large proportion of them are curable without any operation more serious than probing and injecting, and in such cases it is a duty to exhaust the milder measures before resorting to the severer. But it is necessary to make a proper selection of cases. Where the fistula leads to extensive pouches, or several complicated branches leading in different directions about the rectum, the non-operative methods are not likely to succeed in any moderate length of time. But where the fistula is simple and contains no large pouches, and leads pretty directly to an opening in the rectum, there is an excellent prospect of cure without any strictly operative procedures. The reason why a stricture does not cure itself is not altogether, as we have formerly supposed, the daily forcing through it of materials from the rectum. On the contrary, if the interior of the fistula be thoroughly antiseptized throughout its entire length and into every curve and corner, and maintained in that purified condition, the ulcerative tendency which prevents contraction and healing is arrested. Granulations spring up through the whole length of the passage, and close it in spite of any moderate tendency of the rectum to force mucus, gas and feces into its channel.

Naturally enough, the itinerant quacks who are traversing every part of the Mississippi Valley—and, for the most part, are so unskilled that they do not dare undertake a cutting operation—have been among the first to discover the success of the non-operative methods, though they are too ignorant to understand the principle on which they

accomplish their cures. For instance, a man named Brinkerhoff, in Ohio, sells to itinerants for a price varying from \$100 to \$300, according to the gullibility of the purchaser, a little secret book of directions, constituting what is sometimes called the "Brinkerhoff System of Rectal Surgery." With this book of directions goes a little case containing about twelve dollars' worth of instruments, among which there is nothing by which an itinerant could possibly make an incision. He is too ignorant and cannot be trusted with edged tools; and, in fact, in his little book, Brinkerhoff says, in regard to fistula: "Never use the knife or ligatures." He directs the itinerant first to oil the interior of the rectum and the external integuments around. Next he is to inject the fistula thoroughly with an antiseptic mixture, and, taking a probe, churn the medicine thoroughly through every part of the fistula, and then, closing the external orifice with one finger, he is with the other finger to compress the external parts of the channel so as to compel the antiseptic to run thoroughly into the deeper parts. This accomplished he injects 10 or 15 drops of the following mixture:

Distilled extract witch hazel.....	fl	3iij
Liquor of the persulphate of iron.....	fl	3i
Carbolic acid.....	grs	ij
Glycerine.....	fl	3lj

Mx.

The itinerant is then to apply an antiseptic mixture to the internal orifice of the fistula and to any ulcers in its vicinity. He is to repeat this treatment every two or four weeks, depending not on the welfare of the patient, but upon whether the quack is working a two-weeks' or a four-weeks' circuit. Other irregulars take the following course: First having explored the fistula well with a flexible probe, they wash out its channel with a solution of hydrogen peroxide. They then take equal parts of 95 per cent. carbolic acid and a 10 per cent. solution of

cocaine and inject carefully but thoroughly 10 to 15 minims of the mixture into the fistula. The patient is then to lie down about two hours, when he receives into the fistula an injection of equal parts of *Ol. eucalypti* and glycerin, with orders to keep quiet for two days more. These men have discovered that many fistulas can be cured by such antiseptic methods, although they generally do not understand the principle on which it is accomplished. Their ignorance of general science, however, need not deter us from observing the results of their experiments, and applying the principles involved in them for the benefit of our patients. Dr. Matthews, a regular physician of Louisville, has devised a treatment which may almost be called non-operative and by which he claims to have cured about twenty cases. His plan is the following: He takes a long slender laminaria tent, and, guiding it into the fistula as far as it will go, leaves it several hours to dilate the passage. He then takes Otis' curethrotome, and, insinuating it into the sinus, turns the screw and moderately dilates the channel, after which, by protruding the knife concealed in the tip of the instrument, he scarifies the interior. If necessary, he repeats the operation several times, thus making the passage straight and simple, giving it a free external opening, and by the irritation of the incisions arousing the growth of new granulations. If one wishes to try the completely non-operative plan, the best method of procedure is as follows: First, explore the interior and ascertain that it is simple enough to give the prospect of being able to make the injections reach all parts of it. Next, bear in mind that this fistula must have a free external opening, otherwise it will confine a quantity of septic pus in the interior, which, both by mechanical distension and irritant qualities, will arrest all efforts at healing. It is therefore best in many cases to enlarge the external portion of the sinus with a bistoury or with a laminaria tent. This being accomplished, inject the whole interior of the fistula carefully with a good vigorous article (for that sold in the shops is very variable) of hydrogen peroxide. It will

be better to inject this through a small catheter inserted into the deepest parts of the channel, or else throw it in by a syringe whose beak is large enough to completely fill the fistulous opening, so that the pressure shall compel the fluid to find its way into the remotest parts. Throwing the solution in repeatedly, and giving it time between the pulsations of the syringe for the foam produced by the action of the medicine on the pus to boil freely out, we next leave the patient quietly on the lounge an hour or two. Then with a small syringe insert about 10 minims of a solution of bichloride of mercury of the strength of one part to 3,000 of water. Repeat this once in about 3 or 5 days, taking pains not to throw large quantities of irritating solutions through into the rectum. This procedure alone will cure a considerable proportion of cases. But if greater thoroughness is required, some advantage will be gained by taking Allingham's rectal speculum and, exposing the internal orifice of the fistula, touch the opening with a stick of nitrate of silver where it enters the rectum, and place the patient in bed with a sheaf of three soft rubber catheters lying side by side in the rectum to give exit to the gases and mucus. The bowels should be previously emptied with a cathartic.

There has been a very general opinion in the profession that it is not expedient to cure a fistula where the patient is inclined to tuberculosis. Dr. E. E. Glover, of Terre Haute, Ind., has taken the pains to ascertain of a large number of surgeons, on both continents, their opinion on this subject, by which he discovers that there is apparently a very great change of opinion on this question. He finds that those who reply to the question as to whether they would operate in tuberculous cases the following who say yes: Allingham, Agnew, Andrews, Brinton, Brodie, Borck, Bonteson, Solis-Cohen, Cole, Francis Delafield, Eastman, Englemann, Gunn, Hamilton, E. F. Ingals, Lane, Linthicum, McGuire, Matthews, Moore, Owens, Prewitt, Peck, Raemy, Sayre, T. G. Richardson, of New Orleans, Roberts, of Philadelphia, Wight, Wilson, Varich and Taylor.

My own opinion is that there is no objection to curing the fistula in such cases. On the contrary, it is beneficial to the patient to do so. But it is true that where it is done by incision the wounds do not always heal well, and if the patient has but a year or two to live on account of his tuberculosis it seems scarcely worth while to submit to the annoyance of the operation. But this would be no reason why he might not be advantageously treated by gentle and non-operative methods, such as we have described.



CHRONIC MENINGITIS, WITH PARTIAL PARALYSIS.

A CLINICAL LECTURE BY N. S. DAVIS, JR., A.M., M.D., PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE IN THE CHICAGO MEDICAL COLLEGE, AND PHYSICIAN TO, MERCY HOSPITAL.

THE history and appearance of the patient before you, and whose symptoms are somewhat unique, may thus be described. He is now about sixty years of age, and enjoyed good health until about five years ago. He was, however, always of a very nervous temperament. Six years ago he was involved in business troubles, which caused him much anxiety and worry. He began also to complain of the feeling of a band drawn tightly around his head which, as he expressed it, he wished he could cut. At the same time he began to grow timid, not being willing to go out or to be left alone. By degrees he became more and more dizzy, or rather uncertain, while walking. He felt that the floor was rising constantly to meet his feet. As these symptoms developed, his head began, also, to assume a retracted position, being drawn backward and held by the tensely contracted muscles of the neck. This symptom remained constant, but varied in intensity. The retraction seemed greatest while he was walking, especially while going down stairs.

About one year ago speech became imperfect, and swallowing became difficult. His eyes also began to fail, so that vision was imperfect.

He entered the hospital June 6th, 1885. His appearance has not materially changed since then. As you see, he now appears very feeble and emaciated. His head is constantly drawn backward, and as I attempt to draw it forward its rigidity in this position is manifest. His countenance appears wan, and to the observer the thought is constantly suggested that he is about to weep. The corners of his mouth are drawn down and his lips kept almost constantly apart. The muscles upon the right side of his face are relaxed, and appear as they do in one affected, to a moderate extent, by hemiplegia. His tongue, you observe, is protruded in a normal manner. Sight is

dim, and most so with the right eye. Hearing, on the other hand, is noticeably acute. The sense of touch does not seem to be impaired. In answering questions you may have noticed that his speech is slow, low and thick or muffled. Swallowing is very difficult. As he takes the first teaspoonful of water you will probably see that it passes quite easily down the throat, although this is not uniformly so, but the second and third will be accompanied by much gurgling in the throat, and more will cause regurgitation into the mouth and an overflow through the lips, and distress about the neck. Occasionally, also, when regurgitation occurs, liquids escape in part through the nares. Owing to this inability to swallow well, the saliva is constantly dribbling from his half-open mouth, or is feebly expectorated at times. This condition causes very great annoyance and discomfort. The position of the head we have already noticed. He never during his sickness has complained of pain or tenderness about it. Often, however, the back of the head and neck feel hot.

The heart-beats I find to be fairly strong, but intermitting. There are two or three steady beats and then a flutter, which embraces probably two beats. The respiratory movements are somewhat feeble, and the lungs do not fill well. He does not cough. The inspirating sound is hitching at the apices of the lungs, and you notice that there is slight dullness in this region. He had no trouble in urinating until he entered the hospital. The first day after his arrival he was unable to micturate, and the catheter had to be used. This difficulty has not recurred. The bowels move only by an enema, which is administered every second day. The limbs are emaciated and weak. The muscles seem most feeble and least useful upon the right side. He is able, however, to make all the usual movements,

but he cannot stand without support, nor walk without assistance. He never sleeps longer than a few minutes or an hour at a time, and always awakes in a fright and often starts up from his bed. He is exceedingly timid, unwilling to be alone, and fearful that something will happen to him.

Interest in this case centers chiefly around the diagnosis. It is quite evident that we have to deal with a disease of the nervous system which has caused a partial paralysis of the muscles used in articulation and deglutition, and a constant contraction of the muscles of the neck. In considering the diagnosis of diseases of the nervous system, it is convenient always first to locate the lesion, as well as possible, and then to determine its nature. Interference with speech and deglutition may be produced by disease of the brain cortex, its deeper structure, and of the medulla or of the nerve trunks. An involvement of the nerves of speech and deglutition is not likely to take place bilaterally, as in this case, unless the lesion is one that involves their roots within the cranium. The origins of the hypoglossal, glossopharyngeal, pneumogastric, spinal accessory, and facial are close together, and diseases of the meninges, such as tumor and inflammation, have been known to involve a part or all of them simultaneously. Disease of the brain that would involve speech and deglutition invariably, we may say, is accompanied by paralysis of other portions of the body, and only rarely produces symmetrical paresis. Lesions in the medulla may produce very similar symptoms to those we see here. In many ways cases of that somewhat rare disease known as progressive bulbar paralysis, or glosso-labio-laryngeal paralysis, resembles this one. One of the earliest symptoms in progressive bulbar paralysis is difficulty of speech. The tongue is not perfectly under command. Not only is there an inability to use it properly but an atrophy of it. By these changes speech is interfered with and also the act of swallowing; next, usually, the lips are affected by both partial loss of motion and atrophy. The aspect is peculiar and very similar to that of the

patient before us. The mouth is constantly about half open, the lower lip drooping, the corners of the mouth being drawn down. The whole countenance presents a lachrymose appearance. Usually saliva dribbles from the mouth. The pharyngeal and laryngeal muscles are atrophied and paretic. In this disease there is degeneration of the nuclei in the medulla, which give origin to the nerves of speech and deglutition. As a result of the involvement of the nuclei we find both loss of motion and atrophy of the muscles. In the case before us, however, there is no atrophy of the muscles of the lips, tongue or soft palate. In progressive bulbar paralysis, where the muscles of the neck are involved, it is in atrophy which causes a constant forward drooping of the head, but in the present case the reverse of this is seen; there is retraction of the head and rigidity of the muscles of the back of the neck. The history of this patient does not correspond closely with that of bulbar paralysis. We may therefore reject this from the possibilities in forming our diagnosis. The other lesions confined to the medulla are acute ones, as, for example, hæmorrhage into the medulla or embolism or thrombosis and inflammation or acute bulbar paralysis. Not only are these diseases sudden in their onset, but acute in their course and usually, at least in the onset, the symptoms are not so strictly local.

We have left to consider the possibility of a tumor or of chronic meningeal inflammation as a cause of the symptoms. Tumors in this region are usually accompanied by intense pain and vomiting. Paralysis of the ocular nerves often is produced but not so often of the muscles of speech and deglutition. The diagnosis of tumors of the medulla is difficult to make, for the symptoms produced by them are quite variable, the most common, however, being those mentioned. Could a chronic inflammation of the meninges cause the symptoms that we find here? This question must be answered in the affirmative, and without doubt this is the most plausible diagnosis of this case. By such inflammation the nerves are involved at their roots, so as

to be functionally imperfect. The retraction of the head also suggests inflammatory irritation of the upper part of the cord or cervical nerves. The heat that is noticed at times about the back of the neck and head might be expected under these circumstances. Usually pain is a prominent symptom of meningeal inflammation, and somewhat singularly this patient has never complained of pain. The girdle sensation about the head is the nearest approach to pain of anything of which he has spoken.

As regards the ætiology of inflammation in this region, it is said most frequently to be the result of syphilitic or alcoholic poisoning. Intense and protracted anxiety, injuries, continued fevers, epidemic cerebro spinal meningitis, rarely acute meningitis and suppurative otitis are other causes. There is in this case no history of syphilitic infection or alcoholic excess, or of injury, or fever, or prior meningitis of any kind. There is, however, a history of intense and prolonged mental anxiety and worry.

The prognosis must be an unfavorable one. The case has been of so long standing that if ever there was hope of cure there can be scarcely any now. The treatment has been chiefly palliative, although some drugs have been employed with the hope of modifying the morbid processes, but unavailingly. For this latter purpose the iodides chloride of gold, ergot and physostigma have been used faithfully. Sleep cannot be deepened or prolonged without rendering him stupid with very large doses of opiates or other hypnotics.

CLINIC AFTER AUTOPSY.

Gentlemen: You will recall the case of an old gentleman who was shown to the clinical class a month and a half ago, whose symptoms pointed to an involvement of the medulla or bulbar nerves, and in regard to whom we made the probable diagnosis of meningitis about the medulla, and possibly the upper part of the cord.

The patient remained in practically the condition in which he was seen by you from the time he entered the hospital until August 10th, when he began to complain of pain in the bowels and had

frequent passages, mostly fluid, with small particles of dry, hard fæces. The pain caused considerable suffering. It was partly allayed by full doses of opiates. After the second day he became very dull; respiration was shallow and there were signs of œdema of the lungs. The right half of the body seemed also less perfectly under control of the will than before. His respiratory movements grew gradually weaker until death occurred. An autopsy was made a few hours later. On opening the cranial cavity the walls of the membranes appeared full of dark blood. The membranes also were distended by an accumulation of serum beneath the pia mater. Adhesions between dura and pia mater were present over the upper surface of the cerebrum near the central line. There were here and there in the pia mater and below it, extending into the sulci, white opaque and firm patches, evidently of inflammatory origin. The pachionian bodies were more numerous than normal, and about them the minute vessels were distended with blood. The dura and pia maters were thickened in places. There were also adhesions between the cerebellum and the cerebrum on the left side. About the upper portion of spinal column and medulla there were close adhesions and bands of new tissue. These had to be dissected away before the brain could be removed. The adhesions were particularly close about the hypoglossal, but involved the neighboring nerve roots to some extent. They were firmest, also, upon the right side. The ventricles were distended slightly with serous fluid. A microscopical examination of medulla revealed no abnormal appearances. There was nothing in the changes in the other organs that threw light upon the early history of the case.

The pericardium, the pericardial cavity and the heart were normal in size, shape and structure. Old and firm pleural adhesions were found over the right lung. On section, the lungs appeared œcleastian, with near the apex a few quite small firm patches of cirrhosis, and with here and there small neighboring patches of emphysema. The left lung was free in its pleural cavity and

presented appearances exactly corresponding to those of the right. The areas of firm cirrhosis were, however, more numerous.

The kidneys were small and soft. The capsule slightly adherent. The cortex, especially near the middle, was narrow, pale and grayish yellow.

The liver was normal in size, shape

and consistency, but somewhat paler than natural.

Nothing abnormal was observed about the stomach, intestines or bladder.

The autopsy, therefore, shows clearly that the case was one of chronic inflammation of the meninges, chiefly about the medulla and base of the brain.



MEDICAL LEGISLATION.

THE ILLINOIS AMENDED PRACTICE ACT.

FOLLOWING is the new medical practice act passed by the General Assembly of Illinois at its recent session, and which went into effect July 1st :

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That no person shall practice medicine in any of its departments in this State unless such person possesses the qualifications required by this act. If a graduate in medicine, he shall present his diploma to the State Board of Health for verification as to its genuineness. If the diploma is found genuine, and from a legally chartered medical institution in good standing, and if the person named therein be the person claiming and presenting the same, the State Board of Health shall issue its certificate to that effect signed by all of the members thereof, and such certificate shall be conclusive as to the right of the lawful holder of the same to practice medicine in this State. If not a graduate, the person practicing medicine in this State shall present himself before said board and submit himself to such examination as the board may require, and if the examination be satisfactory to the board, the said board shall issue its certificate in accordance with the facts, and the lawful holder of such certificate shall be entitled to all the rights and privileges herein mentioned.

SEC. 2. The State Board of Health shall organize within three months after the passage of this act, it shall procure a seal, and shall receive through its secretary, applications for certificates and examinations; the president and secretary shall have authority to administer oaths, and the board to take testimony in all matters relating to its duties: it shall issue certificates to all who furnish satisfactory proof of having received diplomas or licenses from legally chartered medical institutions in good standing as may be determined by the board; it shall prepare three forms of certifi-

cates, one for persons in possession of such diplomas or licenses, the second for candidates examined and favorably passed on by the board, and a third for persons to whom certificates may be issued as hereinafter provided in section 12 of this act; it shall furnish to the county clerks of the several counties a list of all persons receiving certificates. In selecting places to hold its meetings, it shall, as far as is reasonable, accommodate applicants residing in different sections of the State, and due notice shall be published of all its meetings for examination. Certificates shall be signed by all the members of the board, and the secretary of the board shall receive from the applicant a fee of five (5) dollars for each certificate issued to such graduate or licentiate. Graduates or licentiates in midwifery to pay the sum of two (2) dollars for each certificate. All such fees for certificates shall be paid by the secretary into the treasury of the board.

SEC. 3. The verification of the diploma shall consist in the affidavit of the holder and applicant that he is the lawful possessor of the same, and that he is the person therein named. Such affidavit may be taken before any person authorized to administer oaths, and the same shall be attested under the hand and official seal of such officer, if he have a seal; and any person swearing falsely shall be deemed guilty of perjury, and punished accordingly. Graduates may present their diplomas and affidavits as provided in this act, by letter or by proxy, and the State Board of Health shall issue its certificate the same as though the owner of the diploma was present.

SEC. 4. All examinations of persons not graduates or licentiates, shall be made directly by the board, and the certificates given by the board shall authorize the possessor to practice medicine and surgery in the State of Illinois.

SEC. 5. Every person holding a certificate from the State Board of Health shall have it recorded in the office of the clerk of the county in which he resides within three months from its date, and the date of recording shall be indorsed thereon. Until such certificate is recorded as herein provided the holder thereof shall not exercise any of the rights or privileges conferred therein to practice medicine. Any person removing to another county to practice shall record the certificate in like manner in the county to which he removes, and the holder of the certificate shall pay to the county clerk the usual fees for making the record.

SEC. 6. The county clerk shall keep, in a book provided for the purpose, a complete list of the certificates recorded by him, with the date of the issue of the certificate. If the certificate be based on a diploma or license, he shall record the name of the medical institution conferring it, and the date when conferred. The register of the county clerk shall be open to public inspection during business hours.

SEC. 7. The fees for the examination of non-graduates shall be as follows: Twenty (20) dollars for an examination in medicine and surgery; ten (10) dollars for an examination in midwifery only; and said fees shall be paid into the treasury of the board. If an applicant fails to pass said examination his or her fee shall be returned. Upon successfully passing the examination the certificate of the board shall be issued to the applicant without further charge.

SEC. 8. Examinations may be made in whole or in part in writing, and shall be of an elementary and practical character, but sufficiently strict to test the qualifications of the candidate as a practitioner.

SEC. 9. The State Board of Health may refuse to issue the certificates provided for in section 2 to individuals guilty of unprofessional or dishonorable conduct, and may revoke such certificates for like causes. In all cases of refusal or revocation the applicant may appeal to the Governor, who may affirm

or overrule the decision of the board, and this decision shall be final.

SEC. 10. Any person shall be regarded as practicing medicine, within the meaning of this act, who shall treat, operate on, or prescribe for any physical ailment of another. But nothing in this act shall be construed to prohibit service in cases of emergency, or the domestic administration of family remedies. And this act shall not apply to commissioned surgeons of the United States Army, Navy or Marine Hospital Service in the discharge of their official duties.

SEC. 11. Any itinerant vendor of any drug, nostrum, ointment or appliance of any kind, intended for the treatment of disease or injury, or who shall, by writing or printing or any other method, profess to cure or treat any disease or deformity, by any drug, nostrum, manipulation or other expedient, shall pay a license of one hundred (100) dollars per month into the treasury of the board, to be collected by the State Board of Health, in the name of the People of the State of Illinois for the use of said Board of Health. And it shall be lawful for the State Board of Health to issue such license on application made to the State Board of Health, such license to be signed by the President of the Board, and attested by the secretary of the board, with the seal of the board. Any such itinerant vendor who shall vend or sell any such drug, nostrum, ointment or appliance without having a license so to do, shall, if found guilty, be fined in any sum not less than one hundred dollars, and not exceeding two hundred dollars for each offense, to be recovered in an action of debt before any court of competent jurisdiction. But such board may for sufficient cause refuse such license.

SEC. 12. Any person practicing medicine or surgery in the State without the certificate issued by this board in compliance with the provisions of this act, shall for each and every instance of such practice forfeit and pay to the people of the State of Illinois for the use of the said State Board of Health the sum of one hundred (100) dollars for the first offense, and two hundred (200) dollars for each subsequent offense, the same to

be recovered in an action of debt before any court of competent jurisdiction, and any person filing or attempting to file as his own the diploma or certificate of another, or a forged affidavit of identification, shall be guilty of a felony, and upon conviction, shall be subject to such fine and imprisonment as are made and provided by the statutes of the State for the crime of forgery: *Provided*: that all persons who have been practicing medicine continuously for ten years within this State prior to the taking effect of the act to which this is an amendment, and who have not under said original act obtained a certificate from said Board of Health to practice medicine in this State, shall upon proper application to said Board of Health receive such certificate, unless it shall be ascertained and determined by said Board of Health that the person so applying for a certificate is of immoral character, or guilty of unprofessional or dishonorable conduct, in which case, said Board of Health may reject such application: *And, provided*, that such application for a certificate shall be made within six months after the taking effect of this act; and all persons holding a certificate on account of ten years' practice shall be subject to all the requirements and discipline of this act, and to the act to which this is an amendment, in regard to their future conduct in the practice of medicine the same as

all other persons holding certificates, and all persons not having applied for or received such certificate within six months after the taking effect of this act, and all persons whose applications have for the causes herein named been rejected or certificates revoked, shall, if they shall practice medicine, be deemed guilty of practicing in violation of law, and shall suffer the penalties herein provided.

SEC. 13. Upon conviction of either of the offenses mentioned in this act, the court shall, as part of the judgment, order that the defendant be committed to the common jail of the county until the fine and costs are paid, and upon failure to pay the same immediately the defendant shall be committed under said order. *Provided*, that either party may appeal in the same time and manner as appeals may be taken in other cases, except that where an appeal is prayed in behalf of the people, no bond shall be required to be filed, whether the appeals be from a justice of the peace, or from the county or circuit court, or from the appellate court. But it shall be sufficient, in behalf of the people of the State of Illinois, for the use of the State Board of Health, to pray an appeal, and thereupon an appeal may be had without bond or security.

SEC. 14. All acts and parts of acts inconsistent or in conflict with this act are hereby repealed.



THE ILLINOIS BOARD OF HEALTH.

THE regular quarterly meeting of the Illinois State Board of Health was held in Chicago on the 8th instant. There were present Drs. W. A. Haskell, Alton, President ; A. L. Clark, Elgin ; G. N. Kreider, Springfield ; W. H. Mackenzie, Chester ; and Dr. John H. Rauch, Chicago, Secretary. The Secretary called attention to the terms of the act passed by the last General Assembly, and moved that the members proceed to organize in accordance therewith, the officers and committees of the old organization to be continued. The motion was carried.

The following resolution was adopted:

"Resolved, That this board reaffirms the action of the State Board of Health taken May 2, 1885, in revoking the certificate of John C. McCoy on charges of unprofessional and dishonorable conduct then presented and the findings against him on such charges."

The Secretary presented the applications of sundry itinerant venders of drugs, nostrums, etc., eight in number. After a full discussion of the subject Dr. Kreider offered the following resolution, which was adopted:

"Resolved, That the applications now pending by itinerant venders of drugs, nostrums, etc., for license to sell and the tender of the fee of \$100 per month for each such license be declined in the exercise of the discretion vested in this board by Sec. 11 of the Act to regulate the Practice of Medicine, such itineracy and the manner of vending being deemed prejudicial to the public welfare."

Dr. Mackenzie offered the following, which was also adopted :

"Resolved, That conviction of the charge of criminal abortion performed or procured by a practitioner of medicine or midwife shall be held as cause for the refusal or summary revocation of the certificate of this board."

Dr. John A. Rauch, Secretary of the

board, reported that there were issued to graduates upon diplomas from medical colleges in good standing 154 certificates since the last meeting of the Board, and to six others on examination ; also four to non-graduates upon proof of twenty-one years' practice in the state, and one duplicate. Fifteen applications for certificates were rejected through inability of applicants to comply with the requirements. Certificates were issued to twenty-eight midwives. Few laws have done more for the practical welfare of the community than the Act to Regulate the Practice of Medicine in Illinois for the last ten years, and the brief record was the best earnest for the future of the faithful and conscientious discharge of the added responsibilities devolved upon the board by the new act approved June 17, 1887. The original law took effect July 1, 1877, and by its terms the following six months were allowed in which to comply with its requirements. During this period it was learned that there were in round numbers July 1, 1877, an aggregate of 7,400 persons engaged in the practice of medicine in Illinois. Of these about 3,800, or more than half, were non-graduates, and these comprised all classes, including those who had assumed the title of "Doctor" without any medical study whatever. The following table gives a comparative exhibit of the status of the profession at the beginning and at the end of these ten years. Comparison of the total number and classes of physicians in the state July 1, 1877, and July 1, 1887:

	July 1, 1877.	July 1, 1887.
Total number engaged in practice.....	7,400	6,180
Graduates and licentiates.....	3,600	5,704
Non-graduated.....	3,800	476
Percentage of graduates and licentiates.....	48.6	92.3
Percentage of non-graduates.....	51.4	7.7

When the law went into effect there

were 1,923 physicians in the state who were not qualified and therefore could not comply with its provisions. Of these by far the greatest number left the state, others abandoned practice, while many qualified themselves and graduated or passed the examinations of the board. In addition the board refused during the year 1878 278 applications for certificates ; in 1879, 175; 1880, 154; 1881, 127; 1882, 111; 1883, 98; 1884, 185; 1885, 75; 1886, 73; and thus far in 1887, 25, making a total of 3,129. Since the organization about 2,000 complaints involving the professional conduct of the licentiates of the board have been received. Nearly all were settled. Thus far this season the conditions affecting the public health have been quite satisfactory, there being nothing in the state to excite public uneasiness. Occasional small-pox cases have occurred, and measles has been the prevailing sickness in many sections.

Yellow-fever at Key West has thus far been confined to that quarter, and carefulness here will better fortify us against any danger from cholera.

Dr. Clarke offered the following resolution, which was adopted:

“Resolved, That the phrase “medical colleges in good standing” in the first section of the act to regulate the practice of medicine, approved June 16, 1887, is hereby defined to include only those colleges which shall, after the sessions of 1890-’91, require four years of professional study, including any time spent with a preceptor and three regular courses of lectures, as conditions of graduation, and shall otherwise conform to the schedule of minimum requirements heretofore adopted by the board.”

The Secretary was instructed to prepare forms of weekly mortality reports for the use of localities where returns of death are made.



EDITORIAL.

THE INTERNATIONAL MEDICAL CONGRESS.

The latest reports that are reliable go to show that the scientific work of the Congress will be of a high order. Nothing can prevent a grand success, scientifically speaking. We are informed that a sufficient number of papers have already been promised by members from abroad to occupy the whole time of each section. This is surely a good endorsement of the Congress. If the above statement is true, it follows of necessity that a large number of foreign physicians and their families will visit this country in September; and, while ostensibly they come on purely scientific business, yet much will be expected in a social way.

The time has come when it is necessary that large amounts of money be placed at the disposal of the management. As already said, from a scientific standpoint the congress will be a decided success; but we admit with much reluctance the fact that when the pocket-book is tapped the outflow is extremely small. Some of the state and local societies have done their share in the way of contributions. Illinois has contributed \$750, and many other states equally well. But in some portions of the country the available amounts have been very small. In this connection we cannot but regret the action taken at the last meeting of the American Medical Association. For an association which invited the Congress to visit this country, and which is to act as host to the visiting members, to contribute the paltry sum of one thousand dollars seems ridiculous. No plea of lack of funds in the treasury is sufficient to excuse the association. It ought to have been the business of the officers to see that at least a respectable sum was kept in the treasury for the expenses of the Congress if the Association should direct its expenditure in that way.

With an income of over twenty thousand

dollars, and with a journal which ought to pay a handsome revenue into the treasury, nothing short of a contribution of five thousand dollars would seem in proportion to the amounts contributed by state and local societies. Not having sufficient funds in the treasury to make a respectable contribution, it would have been a proper thing for the association to have levied a special assessment of, say, one dollar on each member. This would have furnished at least four thousand dollars.

The amounts needed must be made up by private contributions. The sooner these are forwarded the more good will they do. Let every one give something, and let it be done speedily and with good cheer. The profession in America cannot afford to neglect the proper entertainment of its guests, and must do individually what its representative body has failed to do.

CHANGES IN THE CONSTITUTION OF THE AMERICAN MEDICAL ASSOCIATION.

The report of the Committee appointed at the St. Louis meeting under the following resolution excited much debate:

Resolved, That a committee of nine members, including the President, the President-elect and the four Vice-Presidents-elect, be appointed by the chair to consider the various propositions looking to the amendment of the organic law of the association by the *establishment of branches*, or in any other way; said committee to report at the next regular annual meeting what measures of organization, if any, may be desirable.

The report was quite lengthy and did not recommend any radical changes in the organic law of the association.

It is recommended that the amendment to section II, relating to "members by application," be so amended as to read:

Members by Application shall consist of such members of the State, County and District Medical Societies entitled to representation in this Association, as shall make application in writing

to the Treasurer, and accompany said application with a certificate of good standing signed by the President and Secretary of the society of which they are members, and the amount of the annual membership fee, \$5. They shall have their names upon the roll and have all the rights and privileges accorded to *Permanent Members*, and shall retain their membership on the same terms.

This we consider an exceedingly wise amendment, allowing, as it does, members of any recognized state or local society to become permanent members without attendance upon an annual meeting.

The committee recommended that, from the *fifth section* of the *Constitution*, relating to "*Standing Committees*," the *first and third paragraphs* should be stricken out, leaving intact only the second paragraph, relating to the "*Committee of Arrangements*." In place of the first paragraph they advised the insertion of the following important provision, viz.:

The General Committee or Council shall be composed of *two members* from each State and Territorial Medical Society entitled to representation by delegates in the Association, and from the Medical Departments of the U. S. Army, Navy and Marine Hospital Service. They shall be chosen by the members registered and present at each annual meeting, from each State, Territory, and from the Medical Corps of the U. S. Army, Navy and Marine Hospital Service, acting separately, on the third day of each annual meeting; each delegation reporting the names of the members chosen to the Permanent Secretary of the Association on the same day, that they may be announced by him at the opening of the morning session of the fourth day. At the first election each delegation shall choose *two* members of the General Committee, one of whom shall serve *one* year and the other *two* years, and at each annual election thereafter one member shall be chosen to serve for two years, thus making the term of office of members of the General Committee *two* years. It shall be the duty of the General Committee, thus constituted, to organize by choosing annually a Chairman and Secretary, and such sub-committees as may be found necessary to facilitate the work that may be assigned to it; to meet annually at the place and on the day preceding each annual meeting of this Association, and as often during that week as may be necessary; to nominate, on the third day of each annual meeting, all the general officers of the Association (none of whom shall be members of its own body), the members of the Committee of Arrangements, the Committee on Necrology, seven members of the Judicial

Council, and three members of the Board of Trustees for Publication for election by the Association; to recommend the place and time for holding the next annual meeting; and to consider and report upon all subjects that may be referred to it by vote of the Association. The presence of one-third of the whole number of members elected to the General Committee shall constitute a quorum for the transaction of business. If, at any annual meeting of the Association, it shall be found at the close of the general meeting of the first day that a quorum of the General Committee is not present, it shall be the duty of the President and Permanent Secretary to fill the vacancies in the Committee temporarily by selections from the lists of delegates registered as present from the States to which the vacancies belong.

We confess that the wording of this section is to us very ambiguous. According to our interpretation it has some very objectionable features. We believe the object of the committee was to avoid wire pulling or manipulating the committee entrusted with nominating officers. If the proposed amendment is adopted at Cincinnati it will furnish the best opportunity that could be desired to further personal ambitions. If it were possible to influence a committee in a few hours, what will not be possible in a whole year or two? We think this committee should have general supervision of the business affairs of the association, but the committee to whom is entrusted the nomination of officers should be selected on the morning of the third day of each annual meeting and report on the morning of the last day. This would reduce to a minimum the chances for any individual to further personal or other ambitions. It must be admitted that a medical association is human, and that if by any honorable means the methods of the better class of politicians can be carried out they will most assuredly be prosecuted with a vigor that might surprise the veteran statesman. Every possible measure should be guarded against which will permit, as one member well said, of all the business of the association being transacted by members on the stage.

The committee recommends the adoption of the following provision and its incorporation in

the Constitution, as a substitute for the third paragraph of section five relating to the "Committee of Publication," viz.:

The *Board of Trustees* shall consist of nine members, three of whom shall be elected annually on the nomination of the standing General Committee, and shall serve for three years. It shall be the duty of this Board to provide for and superintend the publication and distribution of all such proceedings, transactions, and memoirs of the Association as may be ordered to be published, and in such manner as the Association may direct; and in doing this, it shall have authority to appoint an editor and such assistants, and determine their salaries, and procure and control such materials as may be necessary for the accomplishment of the work assigned to it. To further facilitate its work, it shall be the duty of the Secretaries of the Association and of the several Sections, during each annual meeting, or as soon thereafter as practicable, to deliver to the Board, or such editor or agent as it shall appoint, all such records of proceedings, reports, addresses, papers, and other documents as may have been ordered for publication, either in the general sessions or in the Sections. All moneys received by the Board of Trustees or its agents, resulting from the discharge of the duties assigned them, must be paid to the Treasurer of the Association, and all orders on the Treasurer for disbursements of money in any way connected with the work of publication, must be endorsed by the President of the Board of Trustees. It shall be the further duty of the said Board of Trustees to hold the official bond of the Treasurer for the faithful execution of his office; to annually audit and authenticate his accounts, and present a statement of the same in its annual report to the Association; which report shall also specify the character and cost of all the publications for the Association during the year, the number of copies still on hand, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary.

The wisdom of adopting this provision, in its entirety, we doubt. It will be noticed that the Board of Trustees are required to turn over all moneys into the hands of the Treasurer; that all orders on the Treasurer for the disbursement of funds must be endorsed by the President of the Board of Trustees; and farther, that the Board of Trustees holds the official bond of the Treasurer and audits his accounts. This plan, if adopted, will make a very pretty mutual admiration society. The Board of Trustees

incurs nine-tenths of the whole expense of the Association, its orders are paid by the Treasurer, and then the Board audits its own accounts. How could it find a mistake or any evidence of extravagance under such a complete system of oversight? * The business management of the Association has been too long at fault. In these times it is as necessary that the affairs of a medical association should be conducted according to business principles as that a banking institution is held to strict accountability for its acts. The proposed changes in the constitution will be voted on at the next meeting in Cincinnati. They should be most carefully considered by every member of the profession that the action there taken may be for the best interests of the association as a whole.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The forthcoming meeting of the Mississippi Valley Medical Association will be one of great importance to that body. Since the adoption of the code of ethics as part of its organic law, the association has had a most remarkable development. It is intensely loyal to the American Medical Association, but believing that body too large and unwieldy to constitute a good *working* society from a scientific point of view, it has taken to itself the work of establishing in the West and South a society which shall stand upon principles broad and comprehensive, having for its first object a high grade of scientific work from its members.

The chief features of importance in this association, as we understand them, are, *a*, its method of membership. It is a non-delegate body. If the constitution which is to be reported at the next meeting is adopted, membership will be limited to those members of the profession of medicine who acknowledge allegiance to the American Medical Association by signing its code of ethics. This requirement we consider simple, and at the same time ample enough to meet all emergencies. *b*. The manner of disposing of its transactions and scientific com-

munications. Believing that the time has passed when it is proper to bury scientific communications in a volumn called "Transactions," which appears frequently as late as one year after the meeting, the Mississippi Valley Medical Association lays no restrictions whatever upon contributors except that contributions presented to the society shall not appear in any but the regular medical journals.

With these two important features in its constitution, we cannot but believe that the association will become one of the foremost in the country.

But there are other things to which this society might well turn its attention. We believe that, instead of a long array of papers upon hackneyed subjects, this association should give its attention to some of the live questions of the day. It might with much profit to itself and others devote considerable time to the discussion of such subjects as "The present condition of our public schools and its effect upon the health of the the young," "Manual training," "The organization of the medical profession," and many others of equal importance.

INSANE PAUPER IMPORTATION

Too much praise cannot be accorded to the Collector of the Port at Boston for his stand concerning the importation of insane paupers. The steamship *Cephalonia*, of the Cunard line, arrived at Boston bringing among its passengers a woman bearing every evidence of insanity, though not of a violent type. The Superintendent of the State Board of Lunacy and Charity refused to allow her to land, as by so doing she would

become a burden on the state. The officers secretly disposed of the woman, and the company was notified that unless she was returned clearance papers would not be granted. The matter was brought to the notice of the Collector. The hearing was private and did not occupy much time, as it was evident that the company had violated the statutes. In making his decision the Collector said: "I shall impose a fine of \$1,000 on the Cunard Steamship Company for landing at this port an insane person named Johannah Casey. Whenever I receive a check for that amount I will furnish the necessary papers for the clearance of the steamer *Cephalonia*, and not until then. Before that check is used the company will be given an opportunity of presenting the case to United States Secretary of the Treasury Fairchild, and I shall, of course, be governed by his decision."

There can be no doubt of the justice of this decision. The authorities should no longer permit this country to be made an asylum for the paupers, the insane, and the general riff-raff from every nation on the face of the earth. It is to be hoped that the Secretary of the Treasury will sustain the decision of the Collector. There is abundant evidence that many of the countries across the water actually pay the passage rate to this country for the vagrant and pauper population rather than support them at home, and up to this time there has been no one to say them nay. The decision in the above case is one that should be followed up in many similar cases which occur at the different ports every day.



DOMESTIC CORRESPONDENCE.

LACK OF INTEREST IN THE DISEASE OF INEBRIETY BY THE GENERAL PROFESSION.

To the Editor of the Chicago Medical Journal and Examiner :

WHEN we reflect upon the fact that an insane temperament, which may be transmitted to offspring, may be established by the alcohol habit; that the alcoholic appetite may originate in moderate indulgence to become fixed and hereditary; that epilepsy, hysteria, idiocy and insanity result from the alcohol habit and become hereditary; that the people of the United States spent, in the period of eleven years, for alcohol more than the entire value of their agricultural, mechanical and manufacturing products; that 33½ per cent. of all deaths in New York, and probably a similar per cent. in every large city, are occasioned, directly or indirectly, by the use of alcoholic drink; that from 13 to 25 per cent. of all cases of insanity become insane through alcoholic drink; that the progeny of alcoholics are peculiarly liable to degenerations of the nervous system; that the alcoholic habit is antagonistic to the highest standard of bodily health and vigor and of capacity for work—then every thoughtful physician must realize that we have before us one of the deadliest evils that curses modern society, and we can but wonder at the astonishing apathy that exists in regard to the importance of a thorough knowledge of the disease of inebriety in the daily work of every member of the profession.

The chief study in this direction ought not to be limited to the very small band of specialists in the profession who come together at the annual meetings of the American Association for the Cure of Inebriates. Such an association should number its hundreds of members. The disease of inebriety does not chiefly fall, in its practical relations, within the working limits of this exceedingly small band of specialists in the profession, nor is its study so difficult as to be at all impossible to the busy practitioner. He is the one who first meets with it in its early cura-

ble stage, and it should be alike his duty and his pleasure to instruct the public that the effects of alcohol penetrate to every part of the living body; that there are but few blood vessels; not a muscle; not an active part of any of the membranes; not a secreting gland, small or large; not an organ of sense; not a single viscus, whether pelvic, abdominal or thoracic, which is not interpenetrated by alcohol, when the alcohol habit be indulged in. It causes marked changes in the rate and force of the heart's action; in the tonicity of the muscular arteries; alters temperature; causes changes in rate of action of gland and muscles; causes changes in the varied forms of sensibility, from the most general to the most special, and the most grave changes of all in the most exalted of all functions comprised under the head of mind and mental operations, until, finally, the co-ordination function in the brain is overthrown and the consciousness of personal identity and responsibility are destroyed.

Alcoholic inebriety is a disease, and curable as other diseases are, and a very much larger per cent. of cases can be cured by regular systematic treatment than is now supposed. Merely keeping a patient away from liquor is the smallest and most unimportant part of treatment. The whole system, which is shattered and broken down, has to be invigorated and restored to its normal standard, and the brain and nervous system must be brought up to the highest resisting point, before the lost will-power is restored and the irresistible craving for alcohol cured. There is no disease of the nervous system more grave and more worthy of the most careful study and attention than dipsomania. It is a true periodic insanity, and only the most careful treatment, continued for months, can cure it. The treatment must be careful, methodical and intelligent, the physician recognizing the fact that he

has to deal with a physical disease. If the profession will so regard it, and aim to instruct the communities in which they live as to the physiological effects of alcohol on the human body—that, primarily, it produces congestion from want of vaso-motor control, loss of muscular control, perversions of judgment and will-power, and absolute prostration of nerve power, while, secondarily, it causes hypertrophy of the heart, structural diseases of the stomach, brain, liver and kidneys; alcoholic dyspepsia; alcoholic phthisis and a multitude of nervous lesions which may end in alcoholic dementia, in which personal identity and

responsibility are lost, and whose earliest symptoms are loss of memory, failure of speech and manifestations of moral obliquity, and finally delirium tremens, mania a potu, and perhaps chronic insanity. If the profession, we repeat, will so instruct their communities as to the action of alcohol on the functions of the human body, the science of preventive or state medicine will owe to such men an incalculable debt of gratitude for disease and death prevented and much domestic misery averted.

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MISCELLANY.

Metaphysical Healing.

It would scarcely seem worth while for the editor of the *Century Magazine* to devote seventeen pages of the valuable space of that periodical to combating the proposition that disease is purely a mental phenomenon. And yet there is one "college in Massachusetts, two in New York City, one in Brooklyn, four in Chicago and one in Milwaukee whose courses of instruction" are based upon that principle. The theory is that matter experiences no sensation, and that the physical body can no more be diseased in reality than a bar of iron can. Hence all human disease is in the mind, for the simple reason that it must be there or nowhere.

The Rev. Dr. Buckley thinks the spread of this doctrine of enough importance to be met seriously, and devotes himself accordingly to the task in the *Century*, as above mentioned. And he furnishes an interesting paper on the subject. The central point from which this nonsense radiates is the "Massachusetts Metaphysical College." It could not be called "medical," since medicine has no part in the "Science of Metaphysical Healing." It is so far above medicine that the latter is scarcely worth talking about. The course of instruction is short and quick. There is a "Primary class," each member of which pays \$300 for twelve lessons; a "Normal Class," which pays per pupil \$200 for six lectures, and a "Metaphysical Obstetrics Class," each student paying \$100 for six lectures.

The treatment is very simple. The sole seat of the disease being in the mind, the mind alone is to be doctored. Convince a person with rheumatism that the rheumatism is all in his mind, or metaphorically, all in his eye, and he can cast it out. If you sit down on a grassy bank and a bumble-bee you need not get up unless you think you must, for the sensation cannot be anywhere but in your mind; and if you keep it out of your mind, or, in other words, do not mind it, you are all right. Faith cure is an incidental branch of the science. Apparently a number of people—who would have got well anyhow—have been cured under this treatment and thus reinforced the delusion. The only grain of substance in it all is that there is a therapeutic value in a hopeful and cheerful state of mind in some cases.—*The World*.

Deaths Among the German Philosophers.

Death has been at work in Berlin among the German medical philosophers with great force this year. In the last few weeks two well-known and learned men have died whose names are not unknown in America. One is Wilhelm Hack, whose theory of the erectile tissue upon the turbinated bones created so much interest some years ago. The second is the pathologist, Carl Friedländer, a name connected with many valuable discoveries, but chiefly with a discovery bearing his name, the pneumococcus.—*Berlin letter in the Therapeutic Gazette*.

THE AMERICAN MEDICAL ASSOCIATION.

THIRTY-EIGHTH ANNUAL MEETING.

The thirty eighth annual meeting of the American Medical Association was called to order in Central Music Hall, Chicago, at 11:05 A. M., Tuesday, June 7th, by Dr. Charles Gilman Smith, Chairman of the Committee of Arrangements. The following members were in attendance:

ALABAMA.

Wm. C. Cross, Tuscaloosa, Ala.
John M. Armstrong, Birmingham, Ala.
H. W. Blair, Sheffield, Ala.
Offa L. Shivers, Marvin, Ala.

ARKANSAS.

Wm. B. Lawrence, Batesville, Ark.
R. G. Jennings, Little Rock, Ark.
Ed. Cross, Little Rock, Ark.
W. H. Hawkins, Texarkana, Ark.
Thomas Edgar Murrell, Little Rock, Ark.
P. Van Patten, Forest City, Ark.
D. C. Ewing, Batesville, Ark.

CALIFORNIA.

Albert L. Gihon, Vallejo, Cal.
John W. Robertson, Crescent City, Cal.

COLORADO.

Peter Brumund, Idaho Springs, Colo.
Mark H. Sears, Leadville, Col.
Arnold Stedman, Denver, Col.

CONNECTICUT.

Edwin A. Hill, East Killingly, Conn.
Walter T. Barber, Waterbury, Conn.
Alfred North, Waterbury, Conn.
Lewis Barnes, Oxford, Conn.
Frank H. Whittemore, New Haven, Conn.

DAKOTA.

E. M. Darrow, Fargo, Dak.
Wm. E. Duncan, Ellendale, Dakota.
J. B. Van Velsor, Yankton, Dakota.
Isaac N. Wear, Fargo, Dak.
Berthold M. J. Conlin, Alexandria, Dak.

DISTRICT OF COLUMBIA.

Theoran Woolverton, Washington, D. C.
Robert Reyburn, Washington, D. C.
Geo. W. Cook, Washington, D. C.
J. B. Hamilton, Washington, D. C.
C. H. A. Kleinschmidt, Washington, D. C.
Jos. M. Toner, Washington, D. C.
A. Y. P. Garnett, Washington, D. C.

FLORIDA.

N. D. Phillips, Gainesville, Fla.

GEORGIA.

J. A. Gray, Atlanta, Ga.
J. W. Bailey, Gainesville, Ga.
Thos. S. Hopkins, Louisville, Ga.
J. Mc. F. Gaston, Atlanta, Ga.
Peter R. Cortleyou, Marietta, Ga.
Thos. Sessions Dekle, Thomasville, Ga.
A. G. Whitehead, Waynesboro, Ga.
M. F. Westmoreland, Atlanta, Ga.

ILLINOIS.

Edmund Andrews, Chicago, Ill.
Phillip Adolphus, Chicago, Ill.
Walter W. Allport, Chicago, Ill.
J. J. M. Angear, Chicago, Ill.
M. D. Hale, Arrowsmith, Ill.
Herman W. Alexander, Joliet, Ill.
C. C. Browning, Adrian, Ill.
A. H. Burr, Chicago, Ill.
Robt. N. Barger, Hopedale, Ill.
Robert H. Babcock, Chicago, Ill.
Frank Billings, Chicago, Ill.
J. K. Berkebile, Millstadt, Ill.
R. G. Bogue, Chicago, Ill.
John Bartlett, Chicago, Ill.
J. E. Bumsted, Dundee, Ill.
John H. Besarian, Chicago, Ill.
L. H. Baker, Payson, Ill.
B. A. Brigham, Chicago, Ill.
Jas. G. Berry, Chicago, Ill.
Norman Bridge, Chicago, Ill.
Mary E. Bates, Chicago, Ill.
James H. Broffet, Paw Paw, Ill.
Josiah Brown, Decatur, Ill.
Wm. Barritt, Onargo, Ill.
H. A. Bates, Chicago.
A. F. Burnham, Ashland, Ill.
D. R. Brower, Chicago, Ill.
J. H. Bates, Chicago, Ill.
A. E. Baldwin, Chicago, Ill.
Robert Boal, Peoria, Ill.
Boerne Bettman, Chicago, Ill.
Wm. T. Belfield, Chicago, Ill.
Truman W. Brophy, Chicago, Ill.
R. W. Crothers, Delevan, Ill.
E. P. Cook, Mendota, Ill.
Jas. M. G. Carter, Waukegan, Ill.
James Cole, Chicago, Ill.
Geo. H. Chapman, Grand Crossing, Ill.
W. S. Caldwell, Freeport, Ill.
J. E. Coleburn, Chicago, Ill.
Alex. H. Cook, Chicago, Ill.
John H. Chew, Chicago, Ill.
George L. Corcoran, Brimfield, Ill.
E. F. Cleveland, Dundee, Ill.
Wm. E. Clarke, Chicago, Ill.
Wm. J. Chenoweth, Decatur, Ill.
Chas. Caldwell, Chicago, Ill.
W. E. Casselberry, Chicago, Ill.

- Boyd Cornick, Mascoutah, Ill.
 E. J. Doering, Chicago, Ill.
 H. C. Donaldson, Morrison, Ill.
 Alfred Dallberg, Chicago, Ill.
 Jno. N. Dixon, Springfield, Ill.
 I. E. De Olney, Chicago, Ill.
 N. S. Davis, Chicago, Ill.
 Isaac N. Danforth, Chicago, Ill.
 Wm. Dougall, Joliet, Ill.
 Nath. S. Davis, Jr., Chicago, Ill.
 Fannie Dickinson, Chicago, Ill.
 Charles W. Evans, Ill.
 Wm. O. Ensign, Rutland, Ill.
 C. W. Earle, Chicago, Ill.
 J. W. Emmons, Forreston, Ill.
 J. A. Freeman, Millington, Ill.
 C. A. Foulks, Chicago, Ill.
 Geo. F. Fliske, Chicago, Ill.
 A. H. Foster, Chicago, Ill.
 Corwin A. Freeman, Leland, Ill.
 E. W. Flegenbaum, Edwardsville, Ill.
 Julius Fiegenbaum, Alton, Ill.
 David W. Graham, Chicago, Ill.
 W. M. German, Morgan Park, Ill.
 Geo. H. Gilson, Shipman, Ill.
 Chas. B. Goldsborough, Chicago, Ill.
 Joseph L. Gray, Chicago, Ill.
 Henry Gradle, Chicago, Ill.
 Moses Gunn, Chicago, Ill.
 A. W. Harlan, Chicago, Ill.
 E. P. G. Holderness, Chenoa, Ill.
 V. L. Hurlburt, Chicago, Ill.
 Benj. H. Harris, Groveland, Ill.
 John W. Hensley, Yates City, Ill.
 J. E. Hequembourg, Chicago, Ill.
 R. N. Hall, Chicago, Ill.
 H. C. Holton, Sidell, Ill.
 S. T. Hurst, Greenview, Ill.
 J. G. Harvey, Blue Mound, Ill.
 Albert E. Hoadley, Chicago, Ill.
 Plymmon S. Hayes, Chicago, Ill.
 H. T. Hardy, Kaneville, Ill.
 S. J. Jones, Chicago, Ill.
 W. W. Jaggard, Chicago, Ill.
 H. C. Jones, Cerro Gordo, Ill.
 E. A. Kilbourne, Elgin, Ill.
 J. R. Kewley, Chicago, Ill.
 E. B. Loomis, Chicago, Ill.
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 John Bell, Benton Harbor, Mich.
 Jas. M. Cook, Muskegon, Mich.
 E. B. Chapin, Grass Lake, Mich.
 J. N. Buckham, Flint, Mich.
 J. H. Carstens, Detroit, Mich.
 Geo. O. Hilton, Paw Paw, Mich.
 Geo. H. Lowry, Hastings, Mich.
 D. E. Fuller, Nashville, Mich.
 Alonzo Garwood, Cassopolis, Mich.
 S. Belknap, Niles, Mich.
 Helen W. M. Kirkland, Kalamazoo, Mich.
 Wm. J. Kelsey, Cassopolis, Mich.
 C. H. Lewis, Jackson, Mich.
 Charles Shepard, Grand Rapids, Mich.
 E. B. Dunning, Paw Paw, Mich.
 Henry B. Baker, Lansing, Mich.
 W. H. Landis, Woodland, Mich.
 Wm. Brodie, Detroit, Mich.
 Simon French, Battle Creek, Mich.
 A. W. Alvord, Battle Creek, Mich.
 C. C. Dillenbaugh, Portland, Mich.
 Lyman W. Bliss, Saginaw, Mich.
 B. Buckham, Flint, Mich.
 Hugh McColl, Lapeer, Mich.
 Geo. E. Frothingham, Ann Arbor, Mich.
 Amy Garrison Kinball, Jackson, Mich.
 H. O. Walker, Detroit, Mich.
 Chas. J. Lundy, Detroit, Mich.
 P. A. Knight, Metica, Mich.
 Wm. Geo. Hervey, Detroit, Mich.
 Robert Le Baron, Pontiac, Mich.
 J. T. Jenkins, Tecumseh, Mich.
 Jos. Groner, Big Rapids, Mich.
 Leartus Connor, Detroit, Mich.
 Carl Brumme, Detroit, Mich.
 I. E. Brown, Detroit, Mich.
 Amos Knight, Eaton Rapids, Mich.
 Hiram Dessinger, Canal Fulton, Mich.
 H. B. Hemenway, Kalamazoo, Mich.
 Jno. H. Kellogg, Battle Creek, Mich.

J. E. Eanerson, Detroit, Mich.
Philo B. Patterson, Charlotte, Mich.

MINNESOTA.

J. Warren Little, Minneapolis, Minn.
John H. Murphy, St. Paul, Minn.
Frederick A. Dunsmoor, Minneapolis, Minn.
Geo. F. French, Minneapolis, Minn.
Chas. N. Hewitt, Red Wing, Minn.
Horace H. Wilberstine, Rochester, Minn.
Cornelius Williams, St. Paul, Minn.
Franklin Staples, Winona, Minn.
James Fulton Percy, Mazeppa, Minn.
N. S. Lane, Eyota, Minn.
A. McLarin, St. Paul, Minn.
Park Ritchie, St. Paul, Minn.
Justus Ohage, St. Paul, Minn.
Chas. E. Rogers, Montevideo, Minn.
William W. Mayo, Rochester, Minn.
J. B. McGaughey, Winona, Minn.
A. W. Stinchfield, Eyota, Minn.
J. H. Stewart, St. Paul, Minn.
A. A. Gilman, St. Cloud, Minn.
E. W. Cross, Rochester, Minn.
H. L. Coon, Northfield, Minn.
P. H. Millard, Stillwater, Minn.
F. J. Hutton, Fergus Falls, Minn.
Chas. Hill, Pine Island, Minn.
Edgar B. Holmes, Oronoco, Minn.
H. P. Johnson, Houston, Minn.
Alex. J. Stone, St. Paul, Minn.

MISSISSIPPI.

Robt. B. Carson, Durant, Miss.

MISSOURI.

Chas. P. Cathcart, Kansas City, Mo.
L. H. Laldey, St. Louis, Mo.
Geo. R. Hughsmith, DeWitt, Mo.
Edward Borck, St. Louis, Mo.
H. O. Leonard, Kansas City, Mo.
Avis Smith, Kansas City, Mo.
Pinckney French, Mexico, Mo.
Thos. F. Rumbold, St. Louis, Mo.
A. H. Ohmann-Dumesnil, St. Louis, Mo.
Jas. E. Logan, Kansas City, Mo.
A. W. Graham, Holstein, Mo.
Dora Greene, Chillicothe, Mo.
B. G. Dysart, Paris, Mo.
N. C. Dalton, St. Louis, Mo.
Chas. P. Goodrich, New Haven, Mo.
J. H. Duncan, Kansas City, Mo.
Frank R. Fry, St. Louis, Mo.
Marcus A. Bogle, Kansas City, Mo.
John M. Allen, Liberty, Mo.
John O. F. Delaney, St. Louis, Mo.
J. H. McKellops, St. Louis, Mo.
Frank J. Lutz, St. Louis, Mo.
Henry Hickman, St. Louis, Mo.
R. M. Jordan, St. Louis, Mo.
R. J. Hill, St. Louis, Mo.
Nicholas Guhman, St. Louis, Mo.
H. W. Latham, Lathamston, Mo.
David C. Gore, Paris, Mo.
Randal R. Hunter, Kansas City, Mo.
Eugene R. Lewis, Kansas City, Mo.
C. Lester Hall, Marshall, Mo.
Charles H. Lester, Kansas City, Mo.
Francis M. Johnson, Kansas City, Mo.
F. A. Glasgow, St. Louis, Mo.
W. C. Glasgow, St. Louis, Mo.
R. T. Henderson, Shawneetown, Mo.
E. H. Gregory, St. Louis, Mo.

L. Ch. Boisliniere, St. Louis, Mo.
Lyman A. Berger, Kansas City, Mo.
John T. Eggers, Kansas City, Mo.
Chas. W. Adams, Kansas City, Mo.
Wm. W. Dougherty, Liberty, Mo.
A. M. Crow, Kansas City, Mo.
George Halley, Kansas City, Mo.
Joel Reiger, Kansas City, Mo.
Isaac N. Miller, Mound City, Mo.
Eustachius Clearville, St. Louis, Mo.
J. L. Burke, La Clede, Mo.
Ed. Neville Chastain, Hume, Mo.
S. Pollak, St. Louis, Mo.
I. N. Love, St. Louis, Mo.
E. A. Waggoner, Carrollton, Mo.
A. H. Fuller, St. Louis, Mo.
P. F. O'Riley, St. Louis, Mo.
A. H. Meisenbach, St. Louis, Mo.
Frank M. Rumbold, St. Louis, Mo.
H. H. Middlekamp, Warrenton, Mo.
Alex. J. Mullen, St. Louis, Mo.
Wm. M. Brown, Lewiston, Mo.
L. T. Standly, La Clede, Mo.
J. B. Wood, Marshall, Mo.
Chas. A. Thompson, Jefferson City, Mo.
J. Henry Thompson, Kansas City, Mo.
Edw. Schauflier, Kansas City, Mo.
A. B. Sloan, Kansas City, Mo.
Willard P. Sexton, New Bloomfield, Mo.
Flavel B. Tiffany, Kansas City, Mo.
A. H. Scott, St. Joseph, Mo.
Wesley Humphrey, Kansas City, Mo.
John H. Van Emmons, Kansas City, Mo.
J. M. Scott, St. Louis, Mo.
Wm. Porter, St. Louis, Mo.
John J. Miller, St. Louis, Mo.
Gratz A. Moses, St. Louis, Mo.
A. B. Carson, St. Louis, Mo.
P. S. O'Reilly, St. Louis, Mo.
C. B. Shaw, St. Louis, Mo.

NEBRASKA.

Richard C. Moore, Omaha, Neb.
John H. Quinn, Blue Springs, Neb.
Wm. M. Knapp, Lincoln, Neb.
Alex. S. Mansfield, Ashland, Neb.
A. F. Jonas, Omaha, Neb.
V. H. Coffman, Omaha, Neb.
J. E. Sumners, Jr., Omaha, Neb.
W. P. Wilcox, Omaha, Neb.
E. W. Lee, Omaha, Neb.
N. B. Larsh, Nebraska City, Neb.
Alice Emily Huff, Lincoln, Neb.
Thos. P. Livingston, Plattsmouth, Neb.
G. W. Johnston, Fairmont, Neb.
Joseph T. Steele, Hastings, Neb.
G. H. Peebles, David City, Neb.
Joseph Neville, Omaha, Neb.
John P. Lord, Omaha, Neb.
Ewing Brown, Omaha, Neb.

NEW HAMPSHIRE

Winslow B. Porter, Walpole, N. H.
John W. Parsons, Portsmouth, N. H.

NEW MEXICO.

Russell Bayley, Las Vegas, New Mex.

NEW JERSEY

L. H. Southward, Newark, N. J.
Chas. Vogler, Newark, N. J.
D. W. Smith, Newark, N. J.

J. Wadsworth Terry, Englewood, N. J.
 Wm. J. Swinton, Somerville, N. J.
 Anson A. Ransom, South Orange, N. J.
 Rich. E. Brown, Mt. Holly, N. J.
 Isaac N. Quimby, Jersey City, N. J.
 H. G. Buckingham, Clayton, N. J.
 Ed. J. Ill, Newark, N. J.
 L. S. Hinkley, Newark, N. J.
 B. H. Watson, Jersey City, N. J.

NEW YORK.

Ed. M. Moore, Rochester, N. Y.
 Van de Warker Ely, Syracuse, N. Y.
 Henry C. Sutton, Rome, N. Y.
 G. R. Martine, Glen's Falls, N. Y.
 James R. Taylor, New York City, N. Y.
 C. C. Wyckoff, Buffalo, N. Y.
 Jno. P. Sharer, Little Falls, N. Y.
 Henry Ernst Schmidt, White Plains, N. Y.
 J. Lewis Smith, New York, N. Y.
 Edward Charles Spilzka, New York City, N. Y.
 Reginald H. Sayre, New York, N. Y.
 A. R. Robinson, New York, N. Y.
 Geo. W. Earle, Tully, New York.
 Frank Kenyon, Scipio, N. Y.
 J. C. Hannon, Hoosac Falls, N. Y.
 Henry W. Carpenter, Oneida, N. Y.
 Darwin Colvin, Clyde, N. Y.
 J. H. H. Burge, Brooklyn, N. Y.
 L. Duncan Bulkley, New York City.
 A. G. Hull, New York City, N. Y.
 W. W. Potter, Buffalo, N. Y.
 Robert Newman, New York, N. Y.
 C. O. Jackson, Victor, N. Y.
 Walter Wyman, New York, N. Y.
 J. B. Andrews, Buffalo, N. Y.
 Chas. W. Brown, Elmira, N. Y.
 A. N. Bell, Brooklyn, N. Y.
 James Edward Kelley, New York.

NORTH CAROLINA.

Chas. F. McGahan, Ashville, N. C.
 John H. Tucker, Henderson, N. C.
 Eugene Grisson, Raleigh, N. C.
 Chas. Jas. O'Hagan, Greenville, N. C.

OHIO.

H. J. Donahoe, Sandusky, Ohio.
 H. G. Hart, Wooster, Ohio.
 Salmon Hudson, Medina, Ohio.
 Wm. C. Frew, Coshocton, Ohio.
 Chas. Graefe, Sandusky, Ohio.
 A. H. Brundage, Xenia, Ohio.
 A. C. Belden, Akron, Ohio.
 Horatio A. Hamilton, Perrysburg, Ohio.
 F. D. Baine, Kenton, Ohio.
 J. Snodgrass, Kenton, Ohio.
 B. F. Clark, Cincinnati, Ohio.
 Alex. Dunlap, Springfield, Ohio.
 Geo. A. Callamore, Toledo, Ohio.
 Wm. A. Focht, New Riegel, Ohio.
 C. G. Comegys, Cincinnati, Ohio.
 W. W. Dawson, Cincinnati, Ohio.
 O. W. Alcord, Ravenna, Ohio.
 O. N. Weise, Cincinnati, Ohio.
 Norman Gay, Columbus, O.
 F. Gunsaulus, Columbus, O.
 F. S. Jones, Medina, Ohio.
 C. C. Hoover, Ross, O.
 Sol B. Hisner, Lima, O.
 J. F. Gabriel, Piqua, O.
 John Cass, Hamilton, Ohio.

Wm. H. Bunce, Oberlin, Ohio.
 Dudley Allen, Oberlin, Ohio.
 A. H. Stephens, Eaton, Ohio.
 Geo. F. Cook, Oxford, Ohio.
 H. J. Herrick, Cleveland, Ohio.
 W. C. Jacobs, Akron, Ohio.
 Edmund C. Carr, Coshocton, Ohio.
 Jonathan Morris, Ironton, Ohio.
 J. C. Mortland, Edgerton, Ohio.
 Albert G. Miner, Niles, Ohio.
 E. J. McCollum, Tiffin, Ohio.
 P. P. Pomerene, Berlin, Ohio.
 William Taft, Cincinnati, Ohio.
 John E. Woodbridge, Youngstown, Ohio.
 Julian Harman, Warren, Ohio.
 Anson R. Smart, Toledo, Ohio.
 H. J. Sharp, London, O.
 Jonathan Taft, Cincinnati, Ohio.
 David Watson, Bellefontaine, Ohio.
 Jonathan B. Vall, Lima, Ohio.
 Xenophon C. Scott, Cleveland, Ohio.
 Cornelius N. Lyman, Wadsworth, Ohio.
 John H. Tressel, Alliance, Ohio.
 Byron Stanton, Cincinnati, Ohio.
 Lorin W. Pontius, Canton, Ohio.
 Akin C. Miller, Cleveland, Ohio.
 C. C. McLaughlin, Dunkirk, Ohio.
 Ben. R. McClellan, Xenia, Ohio.
 C. R. Reed, Middleport, Ohio.
 W. W. Firestone, Wooster, Ohio.
 W. S. Powell, Defiance, Ohio.
 A. H. McCullough, Mansfield, Ohio.
 Aug. J. Garone, Sandusky, Ohio.
 Jno. E. Russell, Mt. Vernon, Ohio.
 Frank C. Larimore, Mt. Vernon, Ohio.
 John K. Woods, Van Wert, Ohio.
 Carl H. Von Klein, Dayton, O.
 Jno. W. Wright, Columbus, Ohio.
 Chas. B. Parker, Cleveland, Ohio.
 I. W. Hamilton, Columbus, Ohio.

PENNSYLVANIA.

John M. Batten, Pittsburgh, Penn.
 Geo. B. Dunmire, Philadelphia, Pa.
 E. P. Allen, Athens, Pa.
 Rich. J. Dungleison, Philadelphia, Pa.
 Thos. M. Drysdale, Philadelphia, Pa.
 J. J. Buchanan, Pittsburgh, Pa.
 J. E. Baker, Lancaster, Pa.
 D. C. Brandes, Erie, Pa.
 E. L. W. Mosbourg, Johnstown, Pa.
 D. E. Hughes, Williamsport, Pa.
 Edward Jackson, Philadelphia, Pa.
 R. B. Ewing, West Grove, Pa.
 T. Ridgeway Barker, Philadelphia, Pa.
 Chas. R. Earley, Ridgeway, Penn.
 H. J. Warmuth, Smyrna, Tenn.
 L. W. Fox, Philadelphia, Penn.
 James B. Murfree, Murfreesboro, Tenn.
 Campbell Slayden, Pinewood, Tenn.
 John S. Mabon, Alleghany City, Penn.
 Cochran McClelland, Philadelphia, Pa.
 H. O. McConnel, New Brighton, Pa.
 Wm. H. Pancoast, Philadelphia, Penn.
 Joseph S. Miller, York, Pa.
 S. M. Ross, Altoona, Pa.
 Thos. L. White, McKeesport, Pa.
 John V. Shoemaker, Philadelphia, Pa.
 E. O. Shakespeare, Philadelphia, Pa.
 Alvin Thayer, Erie, Pa.
 George E. Stubbs, Philadelphia, Pa.
 John Sandt, Castor, Pa.

Theo. P. Simpson, Beaver Falls, Pa.
 Jefferson H. Wilson, Beaver, Pa.
 W. S. Stewart, Philadelphia, Pa.
 Thos. A. Shaw, Pittsburgh, Pa.
 Wm. C. Wile, Philadelphia, Pa.
 Al. A. Seem, Bangor, Pa.
 A. K. Seem, Martin's Creek, Pa.
 Frances M. Perkins, Philadelphia, Pa.
 Chas. S. Musser, Aaronburg, Pa.
 H. W. Hitzrat, McKeesport, Pa.
 Wm. Dickey Kearns, Pittsburgh, Pa.
 Jacob S. Hackney, Uniontown, Penn.
 J. M. Gemmill, Jr., Tyrone, Pa.
 M. O. Jones, Pittsburgh, Pa.
 J. W. Holland, Philadelphia, Pa.
 R. P. Heilman, Emporium, Pa.
 Alexander M. Pollock, Pittsburgh, Pa.
 J. C. Dunn, Pittsburgh, Pa.
 E. Allen Wood, Pittsburgh, Pa.
 Charles W. Dalles, Philadelphia, Pa.
 W. T. Bishop, Harrisburg, Pa.
 Wm. B. Atkinson, Philadelphia, Pa.
 Wm. M. Brinton, Sharpesburg, Pa.
 W. H. Daly, Pittsburgh, Pa.
 Wm. Anderson, Indiana, Pa.
 Wm. S. Foster, Pittsburgh, Pa.
 J. B. Caldwell, New Hamburg, Pa.
 Stephen A. Craig, Freedom, Pa.
 G. Y. Boal, Baden, Pa.
 W. Earnest Good, Philadelphia, Pa.
 E. S. Gans, Philadelphia, Pa.
 Jno. Wiest, York, Penn.

RHODE ISLAND.

Wm. J. Burge, Pawtucket, R. I.
 E. S. F. Arnold, Newport, R. I.

SOUTH CAROLINA.

Thos. Legare, Charleston, S. C.

TENNESSEE.

W. C. Cook, Nashville, Tenn.
 Chas. N. Cooper, Cleveland, Tenn.
 Wm. Y. Ewing, Nashville, Tenn.
 Wm. F. Briggs, Nashville, Tenn.
 John H. Callender, Nashville, Tenn.
 Giles C. Savage, Nashville, Tenn.
 J. B. W. Nowlin, Nashville, Tenn.
 Jas. B. Stevens, Nashville, Tenn.
 Ed. Duncan, Nashville, Tenn.
 Wm. F. Glenn, Nashville, Tenn.
 S. T. Armstrong, Memphis, Tenn.
 D. J. Roberts, Nashville, Tenn.
 Richard Cheatham, Nashville, Tenn.

TEXAS.

W. P. Burts, Ft. Worth, Tex.
 O. Eastland, Wichita Falls, Tex.
 R. W. Park, Waco, Tex.
 M. A. Taylor, Austin, Tex.
 Daniel B. Blake, Cusco, Tex.
 Wm. A. Adams, Fort Worth, Tex.
 Charles H. Sears, Waco, Tex.

UNITED STATES NAVY.

Delevan Bloodgood, U. S. Navy.

VERMONT.

Samuel H. Griswold, Rutland, Vt.
 M. R. Crain, Rutland, Vt.

VIRGINIA.

Lawrence Ashton, Falmouth, Va.
 J. E. Chancellor, University of Virginia, Va.
 Herbert M. Nash, Norfolk, Va.

WEST VIRGINIA.

J. E. Reeves, Wheeling, W. Va.
 Chas. M. Frissell, Wheeling, W. Va.

WISCONSIN.

George V. Mears, Fond du Lac, Wis.
 Jno. R. McDill, Milwaukee, Wis.
 Lucy Eastman Ermine, Royalton, Wis.
 John S. Walbridge, Berlin, Wis.
 George Leller, Alma, Wis.
 Arthur J. Bergess, Oshkosh, Wis.
 Samuel Bell, Beloit, Wis.
 F. T. Nye, Beloit, Wis.
 Eugene H. Townsend, New Lisbon, Wis.
 G. M. Steele, Oshkosh, Wis.
 J. Ashley Thompson, Oshkosh, Wis.
 Frank S. Wiley, Fond du Lac, Wis.
 G. F. Wilter, Grand Rapids, Wis.
 Henry Palmer, Janesville, Wis.
 Daniel Seymour McArthur, La Crosse, Wis.
 Edward Martin McDonald, Doylestown, Wis.
 David W. Moore, Waupun, Wis.
 Darwin L. Manchester, Waupaca, Wis.
 Wm. T. Pinkerton, Eau Claire, Wis.
 B. O. Reynolds, Lake Geneva, Wis.
 Hugo Phielor, Waukesha, Wis.
 Samuel William French, Milwaukee, Wis.
 John N. O'Brien, Milwaukee, Wis.
 Geo. T. Dawley, Royalton, Wis.
 David C. Davies, Columbus, Wis.
 Robert W. Earl, Columbus, Wis.
 John G. Meachem, Racine, Wis.
 T. P. Russell, Oshkosh, Wis.
 F. R. Garlock, Racine, Wis.
 L. H. Hayman, Boscobel, Wis.
 Christian Linde, Oshkosh, Wis.
 Albert Hayden, Shullsburg, Wis.
 J. C. Hayward, Marshfield, Wis.
 J. K. Bartlett, Milwaukee, Wis.
 N. Monroe Dodson, Berlin, Wis.
 W. Eastman, Mineral Point, Wis.
 Wm. T. Galloway, Eau Claire, Wis.
 R. H. Bingham, Oshkosh, Wis.
 I. W. DeVoe, Wausau, Wis.
 Henry L. Day, Eau Claire, Wis.
 B. C. Guddan, Oshkosh, Wis.
 Wm. L. Tallman, Mineral Point, Wis.
 David La Count, Chilton, Wis.
 Chas. Alexander, Eau Claire, Wis.
 J. F. Corbett, Weyanwega, Wis.
 A. H. Guernsey, Amherst, Wis.
 J. Cavaney, Milwaukee, Wis.
 Edward H. Irwin, Lodi, Wis.
 John Phillip, Stern's Point, Wis.
 J. W. Hawes, Milwaukee, Wis.
 R. M. Hawley, Milwaukee, Wis.
 Geo. E. Catlin, Lake Geneva, Wis.
 Geo. R. Vincent, Wis.
 Geo. Jenkins, Kilbourn City, Wis.
 John B. Edwards, Mauston, Wis.

WASHINGTON TERRITORY.

N. F. Essig, Spokane Falls, W. T.

FIRST DAY'S SESSION.

Prayer was offered by Dr. McPherson, pastor of the Second Presbyterian Church of Chicago.

Dr. Smith, in introducing Mayor Roche, said it is many years since the Pottowottamie Indians had encamped on the banks of the Illinois river. Ever since that time a strange medicinal odor had embraced the stream; and, in the evolution of time, the American Medical Association meets in Chicago. We bid you welcome to our city, and, in extending that greeting, I have the pleasure of introducing to you Mayor Roche.

THE MAYOR'S ADDRESS.

Mayor Roche responded as follows:

Mr. President and Gentlemen, Representatives of the Science of Health and Life: In the name of the citizens of Chicago, I welcome you to this city, distinguished for the large number of able and eminent members of the medical profession, and for the exemplification in all the evocations and pursuits of life of the precept, "Whatsoever thy hand findeth to do, do it with thy might." Your mission—to preserve health and remove disease, to prolong life and make it a blessing—is a beneficent and noble one, worthy of all honor. And, though you have not yet succeeded in overcoming death, you have robbed it of half its terrors.

The present generation has seen great progress in medical science; and the medical profession, I think, has kept pace with the other learned professions, if it has not even excelled them, in original investigations and practical discoveries for the benefit of mankind. (Applause.)

When in health we laugh at the doctors, and sometimes enjoy a joke at your expense. But in sickness you are our hope and refuge; and, to the worn and wasted patient, just struggling back to life from the gates of death, you are like "the shadow of a great rock in a weary land."

The interchange of ideas and experience, and the discussion of theories and experiments by large bodies of educated men, gathered from different and distant sections of the country, by which the individual thoughts and knowledge of each become the common property of all, is a comparatively modern outgrowth of society and must contribute greatly to the interest and usefulness of the medical profession, being full of promise for the future. (Applause.)

These gatherings for mutual comparison and consultation minimize differences, soften asperities, cultivate the amenities, strengthen the humanities, stimulate inquiry and investigation, extend the horizon of mental and moral vision, enlarge the boundaries of human knowledge, and

tend to the unification, improvement and well-being of the whole community.

Gentlemen: I came here as the official representative of a great and hospitable city, whose latch-string is always out, to emphasize the welcome of Chicago to this large, intelligent and representative convocation of a profession whose chief occupation is to *save* life and not *destroy* it, and whose cardinal doctrine is that a sound mind in a sound body is essential to the best performance of the duties of this life, and a great help in fitting men for the life hereafter.

The Chairman of the Committee of Arrangements gave notice that several papers had arrived too late to appear on the programme but would be referred to the appropriate sections.

One by Dr. DeLaskie, of Chicago, on "Infant Feeding" another by Geo. W. Jones, of Danville, Ill., on "Diarrhea in Children," a paper for the surgical section by Dr. Dulles, of Philadelphia, and "The Report of the Committee on Medical and Sanitary on Service on Board Immigrant Passenger Vessels" by Dr. A. N. Bell, of New York.

PRESIDENT'S ADDRESS.

The Chairman then introduced the President, Dr. E. H. Gregory, of St. Louis, who addressed the Association as follows:

Obviously, force and matter "make up" the universe. Force implies antagonism, antagonism perpetuates motion. The living cell is the embodiment of nature. Cell antagonism is life. Multicellular organisms represent a community of unities. A model organism in equilibrium is health. Cell struggle is the gist of modern pathology. Every organ and every element are vulnerable. The strength of resistance in elements and organs, reinforced by the harmony and precision of co-ordination and the vigor of counter agencies, are the momentuous questions.

In seeking for a comprehensive title for my address, I fell upon the two simple words "Cell Antagonism," which form the foundation of my symptomatology and pathology, conjoined with cell changes, the basis of pathological anatomy, embracing at once the universe of life and all the possibilities of life; disease being but one of multitudinous phases of life.

Huxley has likened the body to an army. "Of this army, each cell is a soldier; an organ, a brigade; the central nervous system, headquarters and field telegraph; the alimentary and circulatory system, the commissariat. Losses are made good by recruits born in the camp, and the life of the individual is a campaign, conducted successfully for a number of years, but with certain

defeat in the long run." A model organism assumes that every soldier is a stalwart; every organ a body of stalwarts, with corresponding machines of co-ordination and precision, all alike concerted and vigorous to meet the myriads of counter forces, many of which are too cunning for our ken, but ever ready to take advantage of the least failure of our strength to penetrate our vitals. This force of vital resistance forms the basis of therapeutics, this "*vis mediatrix naturæ*" will be always the indispensable auxiliary of the physician, without which any abandonment of the art would be inevitable.

The morphologist distinguishes two classes of elements within the organism. One class represents the fixed cells, cells which occupy the fortifications within the inter-cellular substance; the other class provides for the formation of new tissue, and represents the standing army, sometimes called embryonal substance. Before Cohnheim, our knowledge of the mobile elements—the mobilized army—of the body, was nothing; now most of the literature relating to neoplasm is or has become obsolete. Now coagulable lymph is impossible without the white corpuscles. Organizable fluids have vanished. Through the ingenuity and industry of the great German pathologist a revolution has been worked in medical thought. The study of the mobile elements of the body—the relatively independent elements—promises much. We can almost see daybreak in pathology, a dawn before the coming light which is to illuminate some of the dark places of this most intricate subject. Already leucocytes substitute fibrin. The latter is the product of the former. Wherever there is localized impairment of nutrition, the result of inherent weakness, the leucocytes concentrate, feast on the devitalized structures, and thereby develop into a tissue replacing that which they have consumed. When the surgeon wishes to dispose of an adventitious structure—a cyst, for example—in the connective tissue, he lowers the vitality by over-stimulation—irritation—when he confidently expects the leucocytes to congregate and destroy the cyst, substituting a granulation tissue, which in time becomes scar tissue. Now an organizable fluid as the essential product of inflammation, cells playing a passive part, is a thing of the past. Now cell potency, cell subtlety and cell antagonism constitute the pith and marrow of medical science. There was a period in the history of pathology when all the neoplasia sprang from the tissue cells; now the place and destiny of the tissue cell is fixed. When the tissue elements yet contain some undifferentiated protoplasm, proliferation is possible, otherwise not probable. The mobile cells con-

stitute the mobilized army; the great co-ordinating centers assemble them at any moment, ready to antagonize hurtful agencies. Irritation always provokes a concentration of the white cells. Irritation means injury. It may be simple or specific. Either way it is a signal for moving the army in solid phalanx to confront noxious agencies, and the combat is hotly contested till victory or discomfiture ensues.

Inflammation, the keystone of medical science, the standard process by which all other pathological conditions are measured, is only to be explained on the theory of cell antagonism; it is practically a struggle between irritant bodies and white blood corpuscles. Foreign bodies are invariably invaded by leucocytes, their swarming having for its object to repel or render inert the offending cause. Observations directed to the white cell have been followed by an inspiring increase in our knowledge of the vital properties of cells in general. The quality of spontaneous motion once accepted, the idea that the cell played a passive part quickly disappeared, and in its stead came the conception of autonomy, the fact that the cell specialized food for its own purposes, actually breaking up compounds and adapting the products to its own growth and development, strikingly illustrated by an independent form of government—for example, the government of the United States. A great statesman has said ours is a "government of the people, by the people and for the people." Cells live of themselves, by themselves and for the whole body. The cells make the central government. The coördinate machinery is formed by the cells, and the cells are in their turn centralized and harmonized by this power. The tissue elements are in direct continuity with the centre; but it is otherwise with the floating, wandering cells; yet their behavior gives evidence of their concern for the well-being of the entire organism. Again, the free cells take into their substance the most refractory substances, digesting solid bodies; sponges and green plants yielding to their digestive and assimilative processes. Observations the most patient and trustworthy in the lower vegetables have demonstrated the fact that bacteria have been seen in the substance of amoeboid cells; others have been seen pursuing bacteria, ultimately capturing and destroying them. Throughout the whole animal kingdom mesoderm cells use their ingestive power for destroying micro-organisms. Further, this property seems to be utilized for the removal of larv organs. Colorless corpuscles present the same appearance and have similar properties and the same mode of origin in the entire range of living beings. When the irritant or harmful agency is

particularly obdurate, white cells exhibit a very strange habit of throwing out processes which unite with similar processes from neighboring cells, until a considerable mass of protoplasm is formed by their confluence, constituting a giant cell. Thus an army of giants may be improvised on occasions of extreme emergency; for example, when the tail and gills of the tadpole are to be swept off, this powerful division is ready for the Herculean task.

Apply these facts to the inflammatory process in mammae. Suppose a foreign body lodged; that moment leucocytes leave the blood vessels and congregate for the purpose of opposing the intruder. In such diseases as tubercle, leprosy, etc., the giant cells appear, and in their center—their substance—the specific bacillus is found. Koch found the bacillus of anthrax and the bacillus of septicæmia in the mouse, enclosed by white blood cells. We say, with these observations before us, inflammation exhibits a new aspect; cells conquering cells as a process of normal physiology; simply the free cells, the white cells resisting injury, there being a provision not only for concentration, but for increasing their number and augmenting their strength, corresponding to the emergency. A recent authority, Mr. Sutton, says: "If we summarize the story of inflammation as we read it zoologically, it should be likened to a battle.. The leucocytes are the defending army; their roads and lines of communication the blood-vessels. Every composite organism maintains a certain proportion of leucocytes as representing its standing army. When the body is invaded by bacilli, bacteria, micrococci, chemical or other irritants, information of the aggression is telegraphed by means of the vaso-motor nerves, and the leucocytes rush to the attack, reinforcements and recruits are quickly found to increase the standing army, sometimes twenty, thirty or forty times the normal standard. In the conflict cells die and often are eaten by their companions; frequently the slaughter is so great the tissues become burdened by the dead bodies of soldiers in the form of pus, the activity of the cells being testified by the fact the protoplasm often contains bacilli, etc., in various stages of destruction. The dead cells, like the corpses of soldiers that fall in battle, later become hurtful to the organism they in their lifetime were anxious to protect from harm, for they are fertile sources of septicæmia and pyæmia, the pestilence and scourge so much dreaded by operative surgeons. The analogy may seem to some a little romantic, but it appears to be warranted by the facts.

Just here the question obtrudes, Is the action which follows mechanical, chemical and thermal

injuries, and the action caused by vital injuries alike inflammatory processes? In the one, that resulting from physical causes, the nutrient processes are not disturbed, simply increased. In the other, that resulting from vital causes, the cell processes are disturbed, thwarted and vitiated. It seems unfortunate that the action which succeeds to traumatism should be confounded with that which succeeds to specific germs. The nutrient changes come into vigorous play after an ordinary injury, altered in one particular only, viz: the presence of a palpable neoplasm, which substitutes the structures doomed by the injury. The addition of new material is invisible in ordinary nutrition, growth and maintenance for example, the substitution being atomic. When a structure is destroyed bodily, as in traumatism, the substitution is corpuscular, therefor palpable. It is certainly perplexing to assume, as does Sir James Paget, that a visible neoplasm is produced by inflammation, but its development is impossible till after the withdrawal of the inflammation. To get rid of confusion, though we do not emerge from error, is to make a step toward truth. The full effect of traumatism is immediate and complete; it cannot increase itself, therefor its effects are always limited and within the possibility of estimation, for the reason that cause and effects are in precise correspondence; besides antiseptics do not influence the changes in any particular. On the other hand, the most extensive and severe injuries of vascular parts, involving bone, joints, the great cavities, etc., is possible without producing inflammation, provided antiseptic precautions be taken. When such complication ensues, it is a wound accident, not a wound incident, and the result of infection. There is no disturbing factor in the process incident to repair; no waste products. If pus is found, it is the result of the intrusion of some noxious agency, some contagion, some pestilence; in short, a specific cause.

If it be agreed to call the action inseparable from ordinary injury physiological repair, the term inflammation is limited to the series of events referable to a vital agency, which until very recently has eluded detection. A specific agency determines a class of diseases as distinctive and definite as the living creatures studied in natural history. Cell antagonism after physical injury is simply a substitution, through the development of mobile cells, of the tissue which has been spoiled. The fixed elements multiply and develop in the expansion and perfection of the several structures of which they are components, but take no active part in the process of repair after injury. After the perfection of the body, the factors favoring proliferation and those

which inhibit it must be in a state of balance. In functional hypertrophy, the balance is toward the side of proliferation. On the other hand, in non-functional hypertrophy, the problem is not so simple; the balance is disturbed toward proliferation by some mysterious agency. How strikingly different when the cell antagonism is with any vital injury; here cell mysteries clash. The bacteriæ enter into conflict with mobile and fixed cells, but it is not possible to know how the conflict is carried on. Certainly a series of disturbances ensue in the normal metabolism of the elements. The functional, formative and nutritive activities, which are the expressions of cell life, must be altered; their vigor, perhaps, lessened, their susceptibilities modified. Exceptionally their life is enfeebled or extinguished. The issue of a bacterial affection is either the death of the patient or the destruction and elimination of the bacteriæ. It follows that this disturbance of cellular activities is always at the bottom of morbid symptomatology; and observations have shown that disease of this kind, successfully withstood, leaves the element in a peculiar unsusceptible condition, insuring an immunity, almost or quite complete, against a fresh invasion of the same or kindred bacteriæ. This modified susceptibility was practically understood by Jenner. Pasteur, resuming and systematizing the great Englishman's work, successfully modified cell forces, rendering them harmless by cultivation, and sending them on the important mission of destroying the natural proneness to the deadly assaults of the uncultured cells. Whilst we may despair of ever understanding the essential nature of vitality, the study of the causes which regulate life, and their subordination to conditions which may be determined, has led the way to the grandest achievements of recent times. Pasteur and Lister are the great apostles of modern practical thought.

Huxley has suggested that it may be possible to introduce into the economy a molecular mechanism which, like a cunningly contrived torpedo, shall find its way to some particular group of cells and cause an explosion among them, leaving the rest untouched. Pasteur's cell mechanisms exceed the conception of the great scientist, for they cunningly change the vital qualities of the elements without destroying them. May we not look forward for some great advance in therapeutics in the direction to which Pasteur's genius points, by the study of cell antagonism? Certainly vital subtleties may best cope with vital subtleties. Study of the conditions in which infective agents arise, by ascertaining the circumstances which limit or

facilitate their diffusion, has already raised surgery to a proud preeminence. With therapeutics it is otherwise, as it is doubtful whether the new facts have yielded the slightest increase of power against the diseases of mankind. Let us not despair. Knowledge must come first, then wisdom brings its practical application. The study of cell possibilities, their readiness and energy in rendering inert noxious agencies, whether introduced from without or arising from within, exhibiting an antagonism at once potent and direct, rather tends to dampen one's therapeutic enthusiasm. The thoughtful student sees nothing abnormal in disease. To be sure there is a physiological emergency, but there is no disorder in the cell processes; rather the perfection of order. If a physical or chemical cause intensifies the cell changes, in other words, determines the physiological emergency—every cell movement is direct, purposive and efficient, ending only when the intruder is ejected, encysted or accommodated. On the other hand, if the offense be a vital one, a living cell, a microphite, the spectacle is that of one living creature preying upon another, the declaration of the first law of nature, not an enemy, but an intruder struggling for self preservation, simply a physiological fight for life. Can we hope an ideal tonic for cell antagonism, such as would innervate the cells on one side, and enervate them on the other, the "old chestnut," "Prevention is better than cure," is not yet worm eaten.

Cell antagonism implies a struggle. The duration of the struggle is determined by the quality of the irritant and the strength and resources of the antagonists. Acute inflammation is a sharp and decisive action, chronic inflammation is slow and indefinite. There are two striking, important chronic conditions, viz: The interstitial inflammation and the infective granulomata, interesting alike to the physician and the surgeon; both are alike disastrous, the one, interstitial inflammation, destroying by cicatricial contraction; the other, infective granulomata, by stopping at the fibro-blast stage, retrogression replacing development. The quality of infection and the failure to develop beyond the stage of granulative tissue is the exact condition, as illustrated by tuberculosis, syphilis, lupus, etc., in contrast with which is fibrosis of the liver, cirrhosis of the kidney, Bright's disease, fibrosis of the brain, sclerosis, interstitial inflammation, destroying the tissue elements by strangulation and infective granulomata by contamination.

Again, the two varieties of inflammation referred to declare that the quality of the irritant determines the effect of the inflammation, the interstitial variety being caused by physical agency,

and the infective by a vital one. Cells antagonize physical causes without losing any of their vital qualities. Not so when cells antagonize vital causes. When cells are pitted against cells they may be despoiled of their highest quality, as in the infection granulomata they have parted with formative activity. In short, the knowledge that pertains to the presence of a vital irritant epitomizes all that has been taught of infective disorders. The symptomatology and pathology of this class of diseases is but the life history, the play of cell activities, metabolisms and catalysis of antagonizing organisms, as likewise to the knowledge pertaining to the presence of a foreign body or physical irritant is the knowledge, in brief, of fibrinoses in general of that entire class of disorders known as interstitial inflammations. A persistent irritant—injury—with its attendant concentration of leucocytes, their inevitable development and ultimate transformation, the history of the capsulation of a foreign body, whether it be animate or inanimate is the history of cirrhosis of the liver, fibrosis of the lung, morbus Brightii, atrophy of the heart, atrophy of voluntary muscles in general, sclerosis of the brain and bones; in short, diffuse capsulation. Some disseminated irritant, say alcohol, determines a sclerosis of the liver, and how? Every particle of alcohol being a foreign particle, having its capsule, it follows that capsulation is as uniformly distributed as the cause. An artisan inhales fine particles of steel or other foreign material, and fibrinosis of the lung is the consequence. The irritants of gout and rheumatism are lodged in the kidney, the interstitial tissue of the organ increases, and in the end strangulates the tubules and malpighian bodies, resulting in shrinking and total disorganization of the organ, constituting Bright's disease. Like changes occur in the heart co-incident with the development of the interstitial fibrous tissue, as atrophy of the muscular substance, substituting a fibrous induration for its normal structure. A similar change in the voluntary muscles occurs in the curious disease known as the pseudo-hypertrophic paralysis, chiefly afflicting children. The connective tissue between the muscular fibres increases so much that the muscles affected may exceed their normal size three times. Later, however, the new tissue shrinks, and the contractile material of the muscles is spoiled. The condition of sclerosis in bones corresponds to cirrhosis of the liver, and Bright's disease of the kidney. In the nerve centers of the interstitial tissue, neuralgia takes on the same chronic over-growth, strangling the nerve strands and cells, giving rise to the most singular and complicated nervous phenomena. The changes thus

induced are recognized by the general term sclerosis. If it involves the fasciculi of Burdack and the column of Goll, locomotor ataxia results, if the medulla, bulbo-paralysis, etc.

We have purposely avoided reference to diathesis, as also to the precise neurological relationship of cells, not because we deny their influence, but because too little is definitely known. On the contrary, the behavior of cells relatively to irritants is well understood. The presence of a foreign body is at once and directly resisted by the leucocytes, a zone of inflammation, its destruction, transportation or capsulation, even parasites which resist the death-dealing assaults of the leucocytes are at last imprisoned in cases of fibrous tissue.

There yet remains for our consideration a mysterious possibility relating to cell life of great practical moment, viz.: that of entering upon a life of independence, separating from the central nervous system "headquarters," disregarding the "field telegraph," oblivious to the morning "drumbeat," and wholly ignoring the restraining and directing influence of environing structures. We have learned that however much irritation may affect the vital qualities of cells, their fidelity is always preserved, there being no sign of disaffection, the army ever intact, the fealty of the soldiers supreme. Physical causes—traumatism—may crush or impair the tissues, but the cells come to the rescue with all vigor and directness. The prolonged presence of bacteria may impair the forces of the cells, enfeeble and extinguish them, but as long as life lasts their efforts are in harmony with the purposes of the organism. Thus it appears that alienation is not possible through the agency of irritation, however intensified, modified or prolonged.

The question constantly obtrudes: Is alienation possible to a mature element, to an element that has assimilated itself physiologically as well as anatomically, with the surrounding tissues; taking part in its functions; concurring and co-operating in all the processes of the economy? This question seems to have confronted Cohnheim when his ingenuity suggested the embryonal hypothesis, viz: that the tumor germ was congenital; that there were in the mature body embryonal elements and tissues not utilized in the elaboration of the normal structures; latent, embryonal rudiments; small embryonal cells so diminutive as to elude observation, inactive perhaps, till some exciting cause awakens activity. Is not an embryonic element in a mature organism an alien? Is it not already an independent element? Are not the patches in the skin, pigmented moles, islands of cartilage in mature bone, congenital angioma, etc., independent structures,

already tumor germs, congenital rudiments of tumors? Accept the hypothesis of the great German pathologist, and the problem of tumor etiology is almost solved; it remains only to find the exciting cause; the predisposition is inherited; irritation, simple or otherwise, may be nearly allied to the awakening impulse. The difficulty is to reconcile cell antagonism with the proposition this doctrine includes; the idea that all discordant bodies are treated as intruders, either ingested, transported or covered up. We can conceive the possibility of the existence of an inoffensive tissue or element, one that simply draws its nourishment from adjacent tissue, without any serious disturbance of their normal metabolism. We would gladly adopt the theory of Cohnheim, which ascribes the origin of tumor neoplasms to persistent germinal rudiment. Certainly it has much to recommend it. Countless latent embryonal structures, relatively independent, are tolerated by the organism, remaining inactive till favored by some concurrent event, the nature of which is incomprehensible, when they may grow according to their bent. Is it not quite as possible there may be similar, relatively independent elements, ready when stimulated, to multiply independently? Congenital angioma often grow without definite limit; pigmented moles; black, slightly-raised patches in the skin, with which all are familiar, are composed of tissue exactly resembling sarcoma, always suspicious because of their disposition to proliferate independently. It is most difficult to believe in the infidelity of covenant cells, of sundering the compact which unifies the organism. Emancipation seems almost out of the question. We must not only believe that dependent benignant elements become the elements of a parasite—a parasite so vigorous, corrupt and wicked as to destroy its source.

The painful part of the retrospect of a year is that which recalls those who have been taken from us. The past year has had a very special grief for our association in the death of one of our ex-Presidents, Dr. William Owen Baldwin, who died at his residence, and the place of his birth, Montgomery, Alabama, May 30, 1886. He was among the early members of the American Medical Association, and its President in 1869, residing at New Orleans. His address on that occasion will be remembered as abounding in Christian and patriotic sentiments, eminently befitting the good and great physician. The Committee charged with the organization of the Ninth International Medical Congress, which meets at Washington City this year had named him as one of its Vice-Presidents. Dr. Baldwin was remarkable for his culture, the eloquence of

his speech and the beauty of his diction, and will be remembered as an imposing figure in the history of this great Association.

I need scarcely remind you, gentlemen, that we shall have with us, after a few weeks, the medical men of all nations. Soon we shall extend the hand of fellowship to those with whom we have heretofore been united in interest and sympathy in the cause of science. We know that everything is made ready and that success is assured. Again, you will join me, I know, in the declaration that a hearty American welcome awaits their advent, and that the Ninth Meeting of the Great Congress will be memorable in the history of its organization.

After considerable discussion it was decided that the following report should be made to the Association as whole: The Report of the Committee on Medical and Sanitary Service on Board Immigrant Passenger Vessels." This report would have been submitted last year but for a delay in mail delivery.

After considerable correspondence with the House Committee on Commerce the Committee found that the "Act to Regulate the Carriage of Passengers by Sea" of July 22, 1882, was supposed to provide against the evils complained of. But the Committee felt certain amendments to be necessary, and addressed a letter January 21, 1886, to Hon. John H. Reagan, Chairman of the House Committee on Commerce, calling his attention to the ways in which the obligations of the law are evaded.

The law reads "whereon emigrant passengers, or passengers other than cabin passengers," and first cabin and saloon passengers are construed as being exempt from legal obligation, and the Committee also calls attention to the incompetency and disgraceful status of the medical officers and recommends these amendments to meet these evasions.

1st. Wherever the words "cabin passengers" occur, they should be made to read first cabin and saloon passengers.

2nd. In section No. 5 requiring that "Every steamship or other vessel carrying emigrant passenger, or passengers other than cabin passengers exceeding fifty in number, shall carry a duly qualified and competent surgeon or medical practitioner," after "practitioner" to add that if the number of such passengers and crew is over six hundred, a junior or assistant surgeon or medical practitioner be added; the service of such practitioners to be given promptly, without fee, in every case of sickness, and whether there be one or two they be required to perform the duties of sanitary officer, reporting to the Master of the vessel with all suggestions needful.

They should be provided with a competent apothecary or steward, and it shall be their duty to report in writing, under oath, to the officer of the port at which they arrive a detailed account of all sickness and every case of insanity or imbecility noticed. The Committee did not feel called upon to touch on the failure of that portion of the bill intended to provide against the immigration of convicts, etc.

The Session then adjourned.

THE SECTION ON SURGERY AND ANATOMY

was very largely attended. In the absence of the Chairman, the Secretary, Dr. Pollock, presided, Dr. Walker acting as Secretary pro tem.

The paper of Dr. Summers on *Gerebral Abscess* was passed and referred to the committee for publication. Dr. S. C. Armstrong read this paper on "Trephining in a Case of Intermeningeal Hæmatoma with Hemiplegia."

Dr. Walker, in discussing the paper, reported the case of a man brought to the hospital by the police, who supposed him to be suffering from intoxication. His left arm and leg were paralyzed. After remaining in this condition for five days, a conical incision was made over the right fissure of Kolando, and two buttons of bone and four ounces of coagulated blood were removed. A rapid recovery followed, and he left the hospital cured at the end of three weeks.

"SCIRRHUS OF THE MAMMÆ."

Dr. W. C. Wile, of Philadelphia, read an exhaustive paper on the above subject. His treatise is so excellent that we give an almost literal abstract of it. He said:

Which of you have never been approached by a timid, shrinking woman, who, bearing her breast as though making ready for the sacrificial altar, stands awaiting her doom which shall hang upon your verdict? Which of you, think you, know of the agony this poor being has already passed through? Who of you can guess the anguish and fear that have finally driven her to seek a confirmation for her one absorbing thought—the phantom that stays by her and is her inseparable companion by day and by night? Have you ever looked into her eyes when she asks, "Doctor, is it a cancer?" They tell us the eye is the mirror of the soul. Oh! what unutterable depths of anguish do they not depict, when finally, after an examination, we are reluctantly forced to admit the confirmation of her worst fears. How they shine with gratitude, thanksgiving, and joy if we may positively assure her the grounds are unfounded. In my whole medical career I have never found a disease that holds such a fright-

fully depressing sway over a patient's thoughts—one that is so infested with terrors for them, that, apart from all pain, has the power of so ruining a bright, happy, lovable, womanly nature as scirrhus of the mammæ. I have known a woman with cancer of the breast go about her daily vocation, attending to duties, social and wifely, that her position demanded, suffering the agony of the damned, and refusing all treatment, rather than give to her husband and children the knowledge that she suffered from a mammary tumor. Every atom, then, that we may bring to bear testimony to a substantiation of older modes of treatment, any statement we can truly make to fortify good results, should be freely given, so that it be in our power to offer these poor sufferers the effects and benefits of what interference we shall practice.

I have nothing new to offer you in my paper; but I wish to reiterate a point or two that previous writers have already offered, and which, in my own experience, now stand strongly approved. It is not my purpose to enter into the etiology, pathology, or diagnosis of scirrhus, but simply content myself by saying the first is always doubtful, the second well known, and the latter never sure until a section is laid under the microscope. Believing this, then, so firmly, I may say, in the twenty-five cases I present to you, I have had sections of the removed tumors made and a diagnosis of their character given by some able microscopist. In justice to myself and many others I know, I may say, I have removed tumors for scirrhus cancer that subsequent investigations have not verified, and again tumors that were diagnosed as benign have been found to be malignant growths. This is, of course, not of frequent occurrence; but the fact that it does happen, and to the best of us, is what led me to say, a moment ago, that there is always a doubt as to the absolute truth of the diagnosis until verified by microscopical investigation.

With respect to treatment there is now, as there was many centuries ago, diversity of opinion as to what interference shall be practised; in my own humble opinion and that of the vast majority of surgeons there is but one mode of procedure. It consists of amputation, and the earlier the amputation the more likely are the beneficial effects to be enhanced. The fact that a scirrhus cancer will at very rare intervals remain in an adolescent state is no proof or, rather, evidence against the justice of early operative interference. When the patient is advised to wait for developments, we may justly say it is done to cover the ignorance of the attendant, or evidently the result of a timidity which he cannot overcome, and results in an amount of un-

necessary distress which might well be avoided. This every unbiased practitioner will verify, for our results cannot be measured by single instances or by the reports of a few fortunate operators, but must be massed and the inferences drawn from the aggregate cases. Prof. S. W. Gross found the average duration of life in cancer of the breast, if allowed to pursue its own course, to be twenty-seven months. Where extirpation was practised the average was raised to thirty-nine months, a clear gain of one year. With regard to an ultimate result an analysis of 542 cases by the same observer showed that fifty-seven survived over three years without any recurrence, and died of an intercurrent malady, and fifty-three were alive at the date of last reports. The average duration of life after the operation was six years and five months, while only 1.5 per cent. of the cases allowed to run a natural course survived six years. Of the cures 31.57 per cent. were free from the disease at the end of six years. The average duration of the disease in these cases had been seventeen and a half months—as you can see, a period too late to be in its most favorable aspect.

The age at which carcinoma of the mammae most commonly occurs is about between the thirty-fifth and fiftieth years of age. The youngest cases reported of which I have any knowledge are those of Mr. Lyford and Mr. B. B. Cooper. Lyford's case was a girl of eight years; Mr. Cooper's was thirteen years old. Holmes speaks of a preparation, in St. Bartholomew's Hospital, which was removed from a maiden of sixteen. Prof. S. W. Gross' youngest case was twenty-seven years old. Holmes reports 458 cases in which the disease occurred at the following ages:

AGE.		AGE.	
From 20 to 30...	19	From 60 to 70...	34
" 30 to 40...	100	" 70 to 80...	6
" 40 to 50...	193	" 80 to 90...	7
" 60 to 60...	97	" 90 to 100...	2

Thomas Bryant reports the ages of 400 cases as follows:

AGE.		AGE.	
Under 30 years...	17	From 50 to 60...	101
From 30 to 40...	108	" 60 to 70...	29
" 40 to 50...	144	Over 70 years...	1

Of the twenty-five cases which I report to-day the age was as follows:

AGE.		AGE.	
Under 30 years...	1	Between 50 and 60	5
Between 30 and 40	6	" 60 and 70	1
" 40 and 50	11	Over 70 years...	1

Death as a result of the operation is rare, and occurs only from shock when the debilitation of the disease has assumed grave proportions. In

the case of death which I report the operation was performed against my better judgment, for I allowed my refusal to be overruled by the persuasions and entreaties of the patient and her friends. I think, as a general thing, it is a fair statement to say: never operate on a patient who has passed her seventieth year, and never operate when atheromatous degeneration exists; they always do badly. Just one century ago Benjamin Bell wrote: ". . . Even in very advanced stages of cancer it is right to amputate, provided the parts affected can be completely removed. When, indeed, this cannot be effected, from the cancerous parts lying too deep, or from their being immediately connected with organs essentially necessary to life, by which amputation of the one cannot be performed without considerable injury being done to the other; in such circumstances—as the operation would not be of any real utility—it should not be recommended: for, as all the diseased parts could not with propriety be removed, and as the cancerous virus is of a very assimilating nature, it would answer no beneficial purpose to amputate only a portion of them. But in every instance when the parts affected can be safely separated from the sound, as nothing but their removal can afford any chance of safety, we must again say that no hesitation should occur in advising the operation." So wrote this great surgeon a century ago, and to-day I have, after all my studies, with our greatly increased facilities for pathological research, and the improvements in operative procedure, nothing to add, nothing to detract from the great truth he has embodied in the foregoing words.

Another point to which I wish to strongly draw your attention is the unnecessary slaughter to which the skin is subjected in these amputations. Where the skin is not involved save it, and a grand rule is, save all of this tissue that can possibly be saved. The less skin removed, the more readily does the wound heal. The smaller the cicatrix, the less likelihood for a residue in the original site. I find Bell remarked this, and speaks of it in the following terms: "But when any portion of the skin is taken away, . . . the remaining cicatrix is necessarily of the same size; a tenderness is left in the site of the disease, which I am convinced has often some influence in giving rise to a return of it." Later on, he says he never had cause to rue this saving, which he practiced for twenty years before writing the foregoing. I followed the same practice in all my operations, and my results are as favorable, I am sure, as those who practise the wholesale sacrifice of the integument. Thomas, of New York, not long ago

recommended a method of operation in which the tumor is enucleated without the sacrifice of any skin. Of course this is only applicable to those cases in which the skin is not already involved.

In operating upon the mammæ for scirrhus the same broad principles of surgery must be applied that are applicable to surgical interference upon any other part of the human economy. It will be of inestimable value to an operator when he has finally mastered the maxim that the principle never changes whatever the site of the dis-

ease may be. During the last few years I practised antiseptis in operating upon these cases, as I did in all my other surgical work, and I am sure the healing of the wound was so greatly accelerated that I shall never attempt the same operation without taking like precautions, and one may truly here say the end justifies the means.

The following table is an accurate account of the twenty-five successive cases which I present you:

	DATE OF OPERATION.	NAME.	AGE.	SITE.	PERIOD OF IMMUNITY.	PERIOD OF IMMUNITY.
1	Jan. 12th, 1872.	Mrs. A.	39	R.	Healed nicely. No return.	No return.
2	March 3d, 1873.	Mrs. D.	56	L.	Healed nicely; recurred again in 1877. Died in 1882.	Four years.
3	Dec., 1873.	Mrs. A.	47	L.	Healed slowly; no return for five years. Lost sight of.	
4	Jan. 19th, 1874.	Miss P. A.	44	L.	Healed nicely; perfect health for nine months; then returned and died inside of year. Died in 1875.	Nine months.
5	April 3d, 1874.	Miss May S.	39	L.	Very large tumor. Healed nicely. No return.	No return.
6	April 17th, 1874.	Miss Jane T.	43	L.	Very bad case. Insist of operation; large ulcerating surface; very weak. Recurrence in wound and died in six weeks.	None.
7	Nov. 13th, 1874.	Miss L.	47	L.	No recurrence.	No return.
8	Jan. 13th, 1875.	Mrs. T.	52		First operation healed nicely; returned in 1876; operated again; healed again, and died early part of 1877.	1 year and operation. 1 year and death.
9	June 10th, 1875.	Miss May S.	36	R.	Healed perfectly; no return for two years; left then affected. Removed it December 3d, same year. Seemed to have recovered entirely, but recurred in both breasts and died June 13th, 1877.	2 years and operation. 3 years and death.
10	Jan. 12th, 1876.	Miss S.	39	L.	Recovered and no return.	No return.
11	Sept. 22d, 1876.	Mrs. P.	48	R.	No return.	No return.
12	Jan. 3d, 1877.	Mrs. T.	42	R.	No return.	No return.
13	April 7th, 1878.	Mrs. T.	69	R.	No return.	No return.
14	April 10th, 1879.	Mrs. D.	45	R.	No return.	No return.
15	Dec. 11th, 1880.	Mrs. O.	51	L.	Return and death in two years.	Death in two years.
16	Feb. 17th, 1881.	Miss L.	73	Both	Died in three days of shock.	
17	Feb. 27th, 1881.	Mrs. T.	44	L.	No return.	No return.
18	June 18th, 1882.	Miss A.	49	L.	No return.	No return.
19	Aug. 7th, 1882.	Mrs. P.	51	L.	No return.	No return.
20	May 13th, 1883.	Mrs. K.	53	L.	No return.	No return.
21	Oct. 29th, 1883.	Miss D.	31	L.	No return.	No return.
22	July 5th, 1884.	Mrs. F.	27	L.	No return.	No return.
23	Oct. 3d, 1884.	Miss T.	37	R.	Died within one year.	
24	Feb. 9th, 1885.	Miss L.	42	Both.	Second operation; first by some one else. Died within one year.	
25	Feb. 23d, 1886.	Mrs. T.	44	L.	No return.	No return.

In cases Nos. 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, 24, 25, there was no particular incident that calls for mention here.

In the sixth case I had little hope of ultimate recovery at time of operation, the tumor was a very large one, and presented a great ulcerating surface; it had been of three years' standing.

The woman was greatly emaciated through her suffering and the attending cachexia generally. In removing it I had to extirpate a large part of the greater pectoral muscle. I then found that the minor was also involved, and that there were attachments to the ribs. I cut this away, and chiseled the involvement of the ribs away, a

large part of the axillary glands where removed, but in spite of all, as soon as granulation set in it was evident there was a return of the disease, and the woman died in six weeks from the date of the operation.

In case No. 9 it was somewhat different. The first tumor occurred in the right breast in May, 1874. I operated in June, 1875, a few days after I first saw her. The wound healed perfectly, and for two years there was no symptom of any recurrence, and I had begun to hope it might be a cure, when in August, 1877, she returned to me with a nodule the size of a walnut in the left breast. I advised a second operation, to which she submitted. She once more made a good recovery, and there was nothing to indicate a recidive until early in 1880, when a tumor again appeared at the site of the original wound in the right breast, quickly followed by one in the left breast, and she finally succumbed in 1883, eight years after the original operation.

Case No. 16 is that of the old woman, previously referred to. The operation was done as quickly as practicable to avoid unnecessary shock; a continuous cut being employed in the removal of each tumor, ligating all vessels after the removal. In this way less blood is lost, and the shock is not so great as when one continually stops to apply a ligature at each bleeding point. Nevertheless she never rallied and died of shock in three days.

In case No. 22 the early age of the occurrence of the tumor is worthy of note. The patient was just a little past twenty-six years of age when I first saw her. Some eight or ten months later I advised enucleation, although I doubted scirrhus at the time. She was then operated upon, and the specimen sent to my friend, Dr. Dellafield, of New York, for examination; he pronounced it a scirrhus. This was the first case in which I practiced antiseptics. The wound healed by first intention and there has been no return.

In doing these operations aseptically the most scrupulous care must be practised. The part is first scrubbed with soap and water, then washed with ether, and then a stream of 1 to 1000 of bichloride of mercury allowed to play over it. It is then swathed in towels, which have been previously boiled and placed in the same solution for forty-eight hours; all the instruments have been aseptically rendered by prolonged boiling and immersion in strong carbollized solutions. The sponges have been prepared, and the catgut treated in chromic acid and bichloride solution, or oil of juniper and the latter. The operator and assistants practised the same scrupulous care with regard to themselves; scrubbing the hands

and washing them in the mercurial solution. Iodoform is freely used in the wound, and the final dressings consist of half a dozen or more layers of gauze rendered aseptic. After the dressings are applied, and the temperature remains about the normal point, they are not touched for two weeks, when upon removal it will be found that the wound has united by first intention.

The following papers were also read and discussed:

"Cerebral Abscess." By Thos. O. Summers, Jacksonville, Fla.

"Trephining in a Case of Intermenigeal Hæmatoma with Hemiplegia." By S. S. Armstrong, Memphis, Tenn.

"Skin Grafting." By J. D. Griffith, Kansas City, Mo.

"Complete Loss of Scalp, including the greater portion of the Eyelids and one Ear. Treatment by Skin Grafts." By F. C. Shaefer, Chicago.

"Retrofexed Splints for Fractures of the Fore-arm." By W. D. Kearns, Pittsburgh, Pa.

"A Deformity and Disability following a Form of Injury to Ankle Joint." By E. A. Wood, Pittsburgh, Pa.

"Treatment of four cases of Acute Traumatic Tetanus." By R. C. McCord, Lebanon, Ky.

"Report of twelve cases of Alexander's Operation." By J. H. Kellogg, Battle Creek, Mich.

SECTION ON MEDICAL JURISPRUDENCE.

Dr. Frank S. Billings, Director of the Patho-Biological Experiment Station of the State University of Nebraska, read a paper on "The Necessity of a Uniform Standard of Education in all American Medical Schools."

The author is directly opposed to the existing system of medical education, and finds nothing worthy of praise as it now is. The professional results that have been creditable to American medicine have been due more to influence outside the schools than to the schools themselves. The medical school system is rotten from its foundation. Its existence and purpose conflict with the true interests of the State.

It is a case of great advantages derived by the few at the expense of the many. It is more an advertising system than anything else. Doctors are made, physicians are born; doctors treat themselves to fill their own pockets, and physicians treat to save suffering humanity. The physician is the true follower of the principle that public health is public wealth; the doctor is the Iscariot of the medical profession.

The speaker believes that the greatest curse to American medicine is the "Alma Mater" nuisance, and students are used for mere business purposes, not only while students, but after having graduated. He considers this nuisance one of the main features, giving rise to dissensions among medical experts in the courts of law. The aim of the majority of American medical schools is to make doctors simply because it pays, and because those made think it will pay to become such.

In the opinion of the author not one of the American medical schools has been founded in the interest of the public alone.

The great variation in the course of instruction in the different medical schools is compared, the standard being 56 at the last annual report. The actual number of days' attendance upon lectures required varies between 18 and 621 days; this is after deducting Sundays and holidays. In Missouri, out of eight (8) regular schools, the course varies from 224 to 381 days. In New York, from 190 to 621 days.

The remedies proposed by the author for this condition of affairs are found in the following conclusions, which terminate his paper:

First—No uniformity of action can be had in forensic action until some method is devised bringing the regular medical schools into line and inaugurating one system of instruction and one system of graduation in them all.

Second—Forensic medicine must become a specialty for both medical and legal experts, both of which must take a full course in medicine and law.

Third—The desired ends can be best obtained by inaugurating a course for the medical schools in the different parts of the country by the general government, which shall support them; one system of education and one system of graduation dominating these schools. There should also be a national school of comparative medicine to be the chief point of original research and medical education in the land.

Fourth—The inauguration of a course of instruction in pathological anatomy and general pathology in all schools.

Fifth—The condemnation by the American Medical Association of all medical schools not requiring a three years' course of study of nine months each, and the abolishing of one year's study with a regular graduate.

The following papers were also read and discussed in this section:

"Medical Jurisprudence in its relation to Undue Influences as Affecting Wills and Contracts." By Judge Amos G. Hull, New York.

"The Suppression of the Illegal Practice of

Medicine." By Joseph F. Edwards, Philadelphia, Pa.

"State Supervision of the Insane" and "Medico-Legal Relations of Epilepsy." By James G. Kiernan, Chicago, Ill.

"Mental Responsibility in Inebriety." By T. D. Crothers, Hartford, Ct.

"Syphilis and Marriage." By J. V. Shoemaker, Philadelphia, Pa.

OBSTETRICS AND DISEASES OF WOMEN.

Dr. Morris in his paper on "Placenta Prævia" said that three fatal cases of placenta prævia that had recently come to his notice, two of which he had seen in consultation, convinced him that some more positive and radical views of treatment should be adopted in this grave trouble than those suggested in the text books of the day.

He had not, however, prepared a lengthy paper on the subject, but in lieu thereof, had formulated some propositions which he believed would serve as incentives to discussion, and thus call forth the views and experience of the members of the Section.

Dr. Morris laid down the following propositions:

1. No expectant plan is justifiable in cases of placenta prævia. The uterus must be emptied as soon as possible after the discovery of the trouble, no matter what the stage of pregnancy may be. A halting, hesitating practice means danger both to mother and child.

2. That the life of the child must not be considered in the treatment of the case.

3. That the manner of emptying the uterus must be left to the individual judgment of the medical man in attendance.

4. That in cases of central adherence of placenta the safest and best practice is to separate the placenta entirely.

5. That in cases where the placenta is adherent in the latero-cervical zone of the uterus partial detachment may be sufficient, but if the hæmorrhage is not arrested, the whole mass should be removed and means of delivery at once instituted.

6. That the colpeurynter is the only tampon that can be safely used in these cases—that sponge, silk handkerchiefs and other forms of tampon are nasty, filthy and septic, and should never be employed.

7. That the bi-manual treatment, whenever possible, is the best and the speediest form of delivery.

8. That chloroform must be administered in all cases in which manual interference is necessary.

In discussing these propositions, Dr. Morris said that there is no emergency in obstetrics so dangerous, and in which skill, judgment and energy are so necessary, as hæmorrhage resulting from placenta prævia. Statistics show that the maternal mortality in these cases is from twenty-five to forty per cent. Of the four last cases that had come under his notice, all in consultation, three proved fatal—two from septicæmia, on the fourth day, and the third from sudden and uncontrollable hæmorrhage. The fourth case, which recovered, was treated by a pupil of his own, who had lived in the Maternity Hospital, Vienna, for two years and was thoroughly acquainted with the procedures of that school. Dr. Parvin could not have had much experience in these cases, or he would not have recommended delay or palliative measures in these cases as he has done in his recent book. Patients die from two causes, anæmia and septicæmia. Septicæmia becomes essentially fatal in the presence of anæmia. The anæmia is the result of the repeated hæmorrhage permitted to take place under the expectant plan of treatment.

Statistics show that in cases of placenta prævia two-thirds of the children perish before the full term, and of those that are born alive one-half perish soon after birth; therefore, considerations of humanity would lead us to think only of the safety of the mother; indeed, in adopting measures for her speedy delivery, without regard to the safety of the child, more children would be saved in the end.

The manner of emptying the uterus must be left, as before stated, to the individual judgment of the practitioner.

The colpeuryter is the only tampon that can be safely used. It answers many purposes; it serves to arrest hæmorrhage by the pressure it exercises; it softens the cervix and leads to gentle and gradual dilatation of the os; it relaxes the vagina and soft parts, and thus prepares the way for the use of dilators, such as Molesworth's or Barnes' bags, or even the fingers, if practicable. The colpeuryter should be filled with hot water—hot as the patient can bear; this should be renewed every hour. Cotton and sponge tampons are a nuisance and should be discarded.

Colpeuryter is, he said, little known to the general profession. It is only those gentlemen who have been educated in Germany, particularly Vienna, who are acquainted with its remarkable usefulness. There is no other means so valuable in the induction of premature labor.

The safest and best mode in cases where the placenta is centrally adherent is to separate it entirely. This arrests hæmorrhage and clears the

way for further procedures looking to rapid delivery. It is claimed, it is true, that the hæmorrhage does not proceed from the placental surface supplied by the tortuous uterine arteries, but from the uterine veins. This may be true to some extent; but when the placenta is removed pressure can be brought to bear on these bleeding vessels and the hæmorrhage thus be arrested. Separation of the placenta itself furnishes a source of irritation which excites the uterus to action, but we cannot trust to the mere hæmostatic resources of nature. The cases in which there is no uterine action are the most dangerous and require the promptest measures. The manipulation necessary in this condition will generally induce contractions. Astringents and ergot are useless; they only serve to encourage delay when delay means death.

When the head presents and labor pains are active, no manual interference is necessary. In cases of this character the hæmorrhage is absolutely arrested by the pressure of the head.

The bi-manual plan of delivery, recently brought into use, is, no doubt, the best and speediest form of delivery, but it is not always practicable. The young gentlemen who have recently returned from Vienna describe it as a very easy procedure; but I am quite sure that gentlemen educated in the old school of midwifery will not so quickly recognize its great facility. Of course, if bi-manual version is not effected, turning by the ordinary method is the only alternative.

The following additional papers were read and discussed:

"Ante-Partum Hæmorrhage." By Wm. M. Findley, Altoona, Pa.

"Eclampsia." (Author deceased). Paper read by title. By Wm. T. Taylor, Philadelphia.

"Rupture of Uterus." By W. H. Wathen, Louisville, Ky.

"Management of Occipito-Posterior Position." By L. G. Boisliniere, St. Louis, Mo.

"Relationship between Puerperal Fever and Erysipelas in both its Acute and Dormant Forms." By A. McLaren, St. Paul, Minn.

SECTION ON OPHTHALMOLOGY, OTOTOLOGY AND LARYNGOLOGY.

Dr. J. L. Thompson, of Indianapolis, read a paper on "Observations on Displacement of the Crystalline Lens from Congenital and Other Causes." He said:

The first three cases in the above report corroborate the writings of others as to the influence of heredity in congenital displacement of the lens.

Cases II and IV lead one to the conclusion that an eye with a congenitally displaced lens is an exceedingly weak organ, and very prone to progressive luxation, to cataract, and to glaucoma.

All of these were myopic, the myopia being due to lens anomalies and not to elongation of the eyeball—as was proved, both by the ophthalmoscope and by positive glasses, in the cases where the lens had fallen below the axis of vision.

I would also beg leave to call attention to the methods employed in replacing the lens in case No. II, and would suggest that, should one fail by manipulation, he would be justified in evacuating the anterior chamber by a free corneal incision, taking care, of course, not to wound the lens capsule, as one might by that means confidently expect the lens to bound through the pupil the moment that the aqueous escaped.

The most fruitful cause of spontaneous luxation of the lens is subacute inflammation of the uveal tract. Often have I seen it take place during the course of aquo caprulitis keratitis punctata.

Spontaneous luxation of the lens is also often the cause of acquired myopia in elderly persons. Not infrequently have I seen persons who on examination were found to be highly hyperopic and for whom I have prescribed positive glasses, even for infinite distance, and have seen these same persons again, when they needed just as strong negatives as they formerly did positives; but have almost invariably found the anterior chamber more shallow than when first examined, and congestive changes in the fundus with floating bodies in the vitreous humor. Case X shows that the spontaneous cure of cataract is by no means impossible, that it cannot always be accounted for on the theory of a falling of the lens below the upper pupillary margin, nor by injuries rupturing the capsule and subsequent absorption; but that it does, in a small number of cases, first become dislocated, then disintegrate, liquify, and regain transparency.

In luxations of the lens from traumatic causes, such peculiar and marvelous results are so often met with that were one to write a book on that subject alone, he would be classed with such authors as DeFoe or with Herodotus prior to the excavations about Nineveh and Babylon.

Resumé:

"1st. Heredity plays an important part in congenital displacement of the lens.

"2d. Congenital displacement of the lens is a dangerous anomaly which is very liable to lead to progressive luxation, to cataract and to glaucoma.

"3d. Most cases of congenital displacement are highly myopic, and said myopia is due to the malposition of the lens and not to elongation of the antero-posterior axis of the globe.

"4th. Spontaneous luxation of the lens is, in a very large proportion of cases, due to congestion and sub-acute inflammation of the uveal tract, and "second sight" as the acquired myopia of elderly persons is often due to this cause.

"5th. Partial, spontaneous luxation of the lens occasionally results in the spontaneous cure of cataract, not as is usually the case, by the falling of the lens below the upper margin of the pupil, but by degenerative metamorphosis and frequent liquefaction.

Other papers were read, as follows:

"Sympathetic Ophthalmia." By C. M. Hobby, Iowa City, Iowa.

"Hydrobromate of Hyoscine as a Mydriatic." By J. M. Ray, Louisville, Ky.

"Treatment of Hypopyon Keratitis with Frequent Irrigations of Sublimate." By F. C. Holtz, Chicago, Ill.

"Some of the Ophthalmological Clinics of Europe." By J. W. Heustis, Pittsburgh, Pa.

A boy, illustrating the results either of pemphig or essential shrinking of the conjunctiva in both eyes, was exhibited by Robert Tilley of Chicago, Ill.

SECTION ON DENTAL AND ORAL SURGERY.

In this section the papers announced for the afternoon's session were not read, but Dr. Charles P. Pruyn read a paper on "Dental Diagnosis and Prognosis," followed by Dr. A. E. Baldwin on "Conservative Dentistry."

SECTION ON STATE MEDICINE.

Those in attendance upon this Section listened to the reading and discussion of the following papers:

"Influence of Military Life on the Health of the Soldier." By Major Mersi K. Taylor, Surgeon U. S. A.

"The Physical Basis of Brain Work." By Woods Hutchinson, of Iowa.

"Hygiene of Infancy and Childhood." T. B. Grenley, of Kentucky.

SECTION ON DISEASES OF CHILDREN.

The following papers were read before the members of this Section:

"Spasm of the Larynx and Oesophagus." By C. Briggs, St. Louis, Mo.

"Infantile Feeding, especially with reference to Subjects with Infantile Eczema." By L. Duncan Bulkley, New York.

SECTION ON PRACTICE OF MEDICINE, MATERIA MEDICA AND PHYSIOLOGY.

The following papers were read in this section:

"Glanders in the Human Subject, with a Case."

By C. N. Cooper, Cleveland, Tenn.

"Unique Case of Athetosis resulting from a Railway Shock." By C. H. Hughes, St. Louis, Mo.

"Diseases of the Dura Mater producing Motor Paralysis, Facial Spasms and Neuralgia." By Wm. B. Fletcher.

"A New Method of Producing Local Anæsthesia of the Skin." By H. J. Reynolds, Chicago.

"Aids in the Prevention of Fevers." By R. W. Seay, Fitch's Point, La.

WEDNESDAY'S PROCEEDINGS.

THE GENERAL SESSION.

The Association was called to order at 10 a.m. by President Gregory. After prayer by Rev. Mr. Gunsaulus, D. D., Dr. J. V. Shoemaker moved that the rules be suspended and the business taken up and disposed of before the addresses were heard. It was unanimously carried.

The committee of arrangements gave notice "that the exhibition of the police patrol would be repeated this morning on Michigan avenue south of Jackson."

Dr. N. S. Davis asked permission to give notice that the library of the late lamented Professor Jewell was on sale at the store of A. C. McClurg & Co., corner Wabash avenue and Madison street, and the instruments, etc., at Sharp & Smith's, 73 Randolph street. He said these included the greater part of the estate, and all sales made would much benefit the children of one of the most untiring men in the medical profession.

The Board of Trustees for Publishing the Journal presented their report for the year ending March 31, 1887. The report of Dr. N. S. Davis, the editor of the Journal showed that the weekly edition had been 4,387 copies, of which 3,478 have been sent to members of the Association and 909 to regular subscribers and exchanges. This shows a net increase in the membership of 104 and in total weekly circulation of 116. There have been 4,800 copies of the Journal printed each week.

The receipts at the office of publication were: Moneys received from subscribers, advertisers, reprints, and extra journals have been \$7,580.63, of which \$2,494.09 was from subscribers, \$751.35 from reprints and \$4,335.19 from advertisements. This makes a net increase of \$2,250.17 in receipts over the previous year. The cost of publication has been \$13,162.01 of which \$751.35 was for reprints, making the cost of the publication of the Journal \$12,410.66, an increase of \$1,426.99 over the preceding year. The cash value of the association printing office, after deducting 15 per cent. for wear, is \$921.34 to which \$137.22 worth of type, etc., have been added during the year. The actual additions to the association during the year was 506, and new subscribers 18. But 493 members have been dropped from the lists for various causes.

Dr. Wm. G. Eggleston has continued to fill the position of assistant in the editorial chair.

Only \$2,758.95 has been expended during the year for editorial work.

The Journal will be increased four pages during the coming year, and Dr. Davis will continue in the editorial chair.

Dr. Deering Roberts, of Tennessee, rose to a question of privilege, on a matter in the hands of the Secretary. The Secretary read the following communication:

To the President and Members of the American Medical Association:—GENTLEMEN: Satisfactory acknowledgments having been made in The Chicago Times of this morning as regards its assertions in the editorial columns of a preceding issue, reflecting upon the regular medical profession of Chicago and elsewhere, I would most respectfully beg leave to withdraw the resolutions I offered on yesterday morning. Very respectfully, etc.

DEERING J. ROBERTS, M. D.

Dr. Morris, of Baltimore, moved that Dr. Roberts be allowed to take his resolutions from the table. Carried.

Dr. N. S. Davis read the report of the Special Committee on Changes in the plan of Organizations and By-Laws of the Association, appointed in accordance with the following resolution adopted by the Association at the last annual meeting:

Resolved, That a committee of nine members, including the President, the President-elect and four Vice-Presidents elect, be appointed by the Chair to consider the various propositions looking to the amendment of the organic law of the Association by the establishment of branches or in any other way; said committee to report at the next annual meeting what measure of organization, if any, may be desirable."

This resolution was inspired by the desirability of a more permanent and representative busi-

ness committee to perform the work done by the nominating committee, and, second, the desirability of increasing the paying permanent membership. Some had suggested the formation of branches, the members of which would be permanent members of the Association and therefore liable for annual dues. This plan, copied after the British Medical Association, the Committee did not favor.

Dr. Rayburn moved that the report be received.

Dr. Jennings moved that the report be received and adopted.

Dr. Wathen saw objections to the report, but nevertheless hoped it would be adopted.

The motion was put as amended and carried.

Then followed a long and animated discussion as to the legality of adopting the amendments to the constitution without their laying over for one year.

Dr. N. S. Davis made the point that, under the resolutions appointing the committee, the matter could possibly be constituted as an amendment.

Dr. Quinley thought the whole proceeding out of order. The one way was to adopt the amendments to the by-laws and allow the amendments to the constitution to lie over.

Dr. Bell moved that it was the sense of the Association that the amendments had been presented a year ago.

After an animated discussion, during which much confusion existed, and the chair appeared puzzled, a vote was taken on the motion of Dr. Bell, which resulted in 272 for the motion, and 232 against.

On the announcement of this decision there was much confusion, and comment was vigorous. The chair ruled all out of order and proceeded with the business; the next being the call of the nominating committee which was as follows:

NOMINATING COMMITTEE.

Alabama, W. C. Cross; Arkansas, C. G. Ewing; California, J. W. Robertson; Colorado, C. Drummond; Connecticut, W. H. Whitmore; District of Columbia, J. M. Toner; Delaware, —; Florida, M. B. Phillips; Georgia, A. G. Whitehead; Illinois, E. P. Cook; Indiana, T. B. Harvey; Iowa, Wm. Watson; Kansas, W. L. Skenck; Kentucky, D. S. Reynolds; Louisiana, T. G. Richardson; Maine, D. E. Marston; Maryland, T. B. Evans; Massachusetts, E. W. Cushing; Michigan, Wm. Brodie; Minnesota, J. A. McGaughey; Mississippi, T. R. Trotter; Missouri, J. M. Allen; Nebraska, W. M. Knapp; North Carolina, Eugene Grissom; New Hampshire, J. W. Parsons; New Jersey, Lott Southard;

New York, Darwin Colvin; Ohio, X. C. Scott; Oregon, —; Pennsylvania, E. A. Wood; Rhode Island, Wm. J. Burge; South Carolina, Thomas Legare; Tennessee, J. B. Murfee; Texas, R. W. Park; Vermont, S. H. Griswold; Virginia, Louis M. Nash; West Virginia, —; Wisconsin, J. K. Bartlett; United Army, —; United States Navy, D. Bloodgood; United States Marine Hospital Service, H. M. Goldsboro; Dakota, E. M. Darrow; New Mexico, Russell Bailey.

The meeting-place for the Nominating Committee was fixed for Apollo Hall.

The Secretary announced that the American Pharmaceutical Convention had appointed a Committee to present resolutions to the American Medical Association.

The next order of business being the reports of Chairmen, Dr. J. B. Lynch read the report on The Practice of Medicine, after which the Society adjourned to Thursday at 10 a.m.

SECTION OF ORAL AND DENTAL SURGERY.

The Section was presided over by Dr. Marshall, the Chairman.

The first paper was by Dr. K. B. Davis on "Pathological Conditions of the Teeth and Their Systemic Effects."

Dr. G. Frank Lydston, of Chicago, then read a paper entitled: "The Co-relation of General and Dental Medicine and Surgery." As the subject is one on which there is a wide divergence of opinion among dentists, we publish rather full abstracts. Dr. Lydston said:

Having been invited to address you upon some topic of a character suitable for presentation to progressive dentists and oral surgeons, I have thought it advisable to present to you my reasons for believing that the interests of the general practitioner and dentist have much in common. Personally, I am greatly interested in dentistry as a department of the great science and art of general medicine, and in my association with dentists I have derived both social and professional benefit, and have come to regard them as the co-laborers of their medical and surgical brethren in the field of science.

It was long argued by the members of my own department of science that the normal position of the dentist is that of a species of tooth carpenter—a mere mechanical drawer of teeth and plugger of real or imaginary cavities; and it is a serious reflection upon the liberality of the medical profession that many of its members accord much the same position to the dentist of to-day.

In not a few instances the modern surgeon

had indignantly resented the claims of dentistry as a surgical specialty, apparently forgetting in his illiberality that it was only about a hundred years ago that the general surgeon himself began to rise above the level of the barber and the monkish cutter for "the stone." Had there not been a Hunter, who arose like an apostle of scientific light, and began his physio-chirurgical experiments years in advance of his day and age, the present status of general surgery might be most humiliating to contemplate.

It is an amusing fact that in some of our latter-day illustrations of the crudity of the surgery of a past generation, dentistry and general surgery are most intimately associated. How consoling and gratifying to the conceit of ye pompous surgeon of to-day is the legend still to be occasionally seen surmounting a barber pole: "Bleeding, leeching, cupping, blistering, tooth-drawing and hair cutting done here."

Wedded centuries ago, Surgery and Dentistry drifted away from the barber, and, unfortunately, also from each other, *pari passu* with scientific progress. In these modern times we are striving to reunite the two branches of healing by a common interest in science, and upon the basis of a division of labor, i. e.: specialism. It is perhaps fortunate for all concerned that an occasional barber exists who is capable of demonstrating to us the common and humble origin of both specialties.

There has been a striking interdependence of most of the modern improvements in dental and surgical science. Although not generally so accepted, John Hunter's famous experiment of grafting the spur of a chicken cock upon its comb really foreshadowed not only the operation of skin grafting, but that of tooth grafting and tooth implantation, a procedure which has recently been brought so prominently before the dental profession by Dr. Younger. It is indeed singular that the operation of tooth transplantation and implantation was not earlier discovered, inasmuch as the various epithelial tissues and appendages are much alike in their manner of growth and development, and the growth of an implanted or transplanted tooth is hardly more remarkable than the phenomena attendant upon the attachment and growth of millary skin grafts. That a tooth which has been apparently dead for a considerable time should grow after implantation is no more wonderful than the growth of skin grafts which have been transplanted from the dead to the living body. I have myself succeeded in the transplantation of grafts from a corpee dead forty hours, to a healthy living ulcer. As an absolute verification of this, I have grafted

the skin of a negro, dead nearly thirty-six hours to the leg of a white man, and with success, the area of black skin resulting being quite conclusive. Another peculiar fact is that apparently effete epithelium scraped from the surface of the skin, and sprinkled over the granulations of a healthy ulcer, will result in the development of new little islets of skin and thus materially hasten cicatrization.

I understand that living teeth have been transferred from the human mouth to the comb of a cock, and thus preserved for future use, the teeth meantime absorbing nutriment from the circulation of the fowl. If this be practicable, the procedure brings dental surgery of to-day and the now famous experiment of the immortal Hunter very near each other. While my digression may seem irrelevant to some, I think that it is justified by this kinship between skin grafting and tooth grafting.

The histo-genetic power shown to exist in epithelial structures has been shown to exist in others. There seems to be a general law pervading all organic life, to the effect that the power of reproduction and repair of organized matter is in inverse ratio to its degree of differentiation. This holds true of cells as well as bodies completely organized. The star-fish may be dismembered, but it reproduces the lost segments. Smash the *amæba*, and we have as many new *amæba* as we have particles. Spiders, crabs, craw fishes, and some other animals speedily reproduce lost limbs and other appendages. So we see in cells, that epithelial cells are possessed of great vitality, and not only grow themselves, but excite the property of rapid growth in any cell with which they may come in contact. Degraded epithelial cells grow more rapidly than the more perfect forms, as is evidenced by those sad cases of carcinoma and sarcoma so often met with. Connective tissue cells have an innate power of proliferation and propensity for differentiation upon which all processes of repair and growth of all kinds, physiological or pathological, depend. Irritate the tissues, and these propensities are forthwith brought into action.

The labors of the general surgeon showed us long ago that bone could be reproduced from periosteum, and that most daring operator, the late James R. Wood, showed in his noted case of phosphorus necrosis, that the entire lower jaw might be reproduced after its ex-section.

The dental and oral surgeon has not been at all backward in taking advantage of this extraordinary reproductive power of the maxillary periosteum, and my progressive friend, Dr. J. S. Marshall, has recently operated upon the maxil-

lary in a manner which would put some of our general surgeons to the blush. Such operations do not savor very strongly of the tooth-pulling mechanic.

The dentist has not only shown himself to be capable of assimilating the discoveries of surgical science, but he has contributed materially to the art of surgery. To a dentist we owe the discovery of anæsthesia, the greatest boon ever conferred upon suffering humanity.

Much of our knowledge of that valuable drug the peroxide of hydrogen has been due to its use in the practice of dentistry.

Even the field of microscopy has been invaded by the dental scientist. Much of our present knowledge of the forms and growth of micro-organisms is due to the researches of that indefatigable worker Dr. G. V. Black; and it would be well if every physician would study the results of this gentleman's labors in his chosen field.

We have not only come to regard dentistry as a special branch of the healing art, but we are forced to acknowledge that it is a most important branch.

In the words of the late Professor Gross, "Dentistry is the most important specialty in medicine. Many people come into the world and go out of it who never require the services of other specialists, but no child is born that does not sooner or later require the services of the dentist." The words of the Nestor of American Surgery are excellent testimony in favor of dentistry as a necessary specialty, and it would be well if this truth were more generally appreciated.

The classification of dentistry as a specialty of general surgery is justified to a greater degree than in the case of any other specialty. As my lamented friend, the late Professor Van Buren, used to define it, "Surgery is that branch of the healing art which takes charge of all those diseases and injuries which require in their management the use of instruments and mechanical appliances, operations, or especial manual dexterity." To no other specialty does this definition so aptly apply as to dentistry, and I can scarcely conceive of a single dental or oral operation that does not require all of the qualifications mentioned. This eminent surgeon said further, with reference to general surgery as a specialty of medical science, "that a specialty should be the outgrowth of a liberal professional education"; in short, that a true specialist should be a man who knows "something of everything, and everything of something." Every specialty should be evolved from the general field of scientific labor, and its selection should be modified by experi-

ence, the law of division of labor, and special adaptation. In the present paper we have but to do with the dental specialist, and it is to him in particular that we at present apply this general rule.

The dentist is nowadays expected to be a fair anatomist, and it should no longer be considered reprehensible for him to know more than the anatomy of the teeth and jaws. He may never realize the fact that he has an ileo-cæcal valve, or a vermiform appendix, but a little enlightenment upon the subject will not render him less capable of skillful dental work; and when an obstreperous cherry pit lodges in his appendix, he may console himself in the fact that he knows pretty nearly where the trouble is located. He is, of course, expected to know all about the structure and development of the teeth and jaws, the muscular mechanics in their movements, and their nervous and vascular supply, in order that he may occasionally discourse learnedly upon centers of classification, intermaxillary bones and synchondroses *ad infinitum*, as does my enthusiastic friend, Dr. Talbot, when discussing his hobby, "dental irregularities." The necessity for a knowledge of a physiology is self-evident, the embryonal development and eruption of the teeth being of especial importance. A knowledge of the physiological secretions is a necessity, else how could the effects upon the teeth of the morbid conditions affecting them be studied? In the study of normal and morbid secretions a knowledge of chemistry is necessarily involved. Chemistry and metallurgy are further necessary, in order that the student of dental science may become familiar with the various materials and implements with which he works and the composition of the teeth. The dentist requires a certain amount of therapeutical and pharmaceutical information. The dental *materia medica* is becoming an important factor in dental education.

Perhaps the most important branch in dental education is pathology and pathological anatomy, particularly that division of the subject which has been termed "surgical pathology." The amount of general medical and surgical knowledge requisite to a clear understanding of the morbid changes which are under the attention of the dentist is far greater than is supposed by those narrow-minded individuals who regard dentistry as a species of tooth carpentry. The dentist must thoroughly understand the forms, causes and treatment of caries and necrosis of the teeth and jaws, a knowledge of which will open up to him a vast field of general surgical information. If he understands maxillary necrosis he will also understand the same disease as

affecting other bones. He should pay considerable attention to syphilis and its treatment, as causes of caries and necrosis of the teeth and jaws, and inflammation or ulceration of the mucous membrane of the mouth. Being familiar with such lesions, he must necessarily know much of the mucous inflammation and ulceration in other situations. He must learn all about the causes, anatomy and treatment of suppurative inflammation about the jaws, and when he has done so he will have mastered the most important portion of general surgery.

Neoplasms, their causes, method of formation and structure, should be familiar to him, for he may be confronted at any time with epulis cancer of the jaws, extosed or other conditions requiring surgical skill for their relief or cure. He should know all of the important details regarding fractures, their method of union, and mechanical and therapeutical treatment.

The necessity of a thorough understanding of the general principles of medicine, particularly as regards the causes, results and therapeutics of perversions of general nutrition, can scarcely be overestimated. This is most aptly illustrated in those conditions of malnutrition which result from syphilis, rickets and struma, diseases which react most injuriously upon the teeth and jaws. A fair ability to differentiate the various oral lesions of syphilis from benignant affections, and from each other, is requisite. As my views upon this subject were presented before your section at the St. Louis meeting of last year, it is unnecessary at this time to consider the topic in detail, although I consider it one of the most important that can be brought before the progressive dentist.

It is a long way around from defective molars to perverted nutrition, but from imperfect mastication may result imperfect digestion and assimilation, and from the latter condition there may occur such a strain upon the liver and kidneys that actual structural diseases result. Gout is a dyscrasic affection, which may be expected from such conditions of perverted physiology. Conversely, as has been already indicated, morbid appearances of the teeth and gums may indicate certain morbid conditions of the general system, which bear a casual relation to the dental imperfections. As illustrations may be mentioned syphilis, rickets, mercuriolism, struma and scurvy.

A subject with which every dentist should be more or less familiar is the serious affection known as septicæmia, or preferably septæmia or blood poisoning.

Instances of fatal blood poisoning have been known to follow so simple an affection as alveo-

lar abscess, as well as more grave forms of suppurative inflammation about the jaws and teeth. Mild cases are more frequent than is generally supposed. Only a short time since I met with a case of mild septæmia following an alveolar abscess in one of my personal friends. In this instance the dentist in attendance, and a physician to whom he referred the patient prior to his visit to me, failed to recognize the real condition present.

In connection with this condition of sepsis the dentist may simplify this study of the subject if he will remember that septicæmia and pyæmia so-called, are but phases of the same constitutional condition, and are due to the local absorption and subsequent general dissemination of the same septic material. The difference between the two phases of disease are those of degree, not kind, and they depend, not upon the existence of a different materies morbi, but upon: 1st, the primary intensity of the poison; 2d, the facility with which it is absorbed; 3d, the quantity absorbed and the duration of the period of its absorption; 4th, the rapidity of its elimination; 5th, and the most important consideration of all, the inherent vitality or resisting power of the patient.

By studying the subject of blood poisoning in this manner, it may be reduced to a simple and logical basis. As presented in most of the works on surgery, septicæmia and its various phases constitutes a subject so confusing that very few students ever succeed in mastering its intricacies. The dental specialist should not only familiarize himself with the clinical features of septic infection, but he should study the results obtained by the investigations of Pasteur, which foreshadowed all of our knowledge of septic processes. He should also understand the principles laid down by Lister in his system of anti-septic treatment, which involves all of those cardinal principles which govern us in the prophylaxis and treatment of blood infection from suppurating wounds.

Look where we may in the chosen field of the dentist, and we are confronted by intricate problems of a general and most diverse surgical character. Who among our general surgeons can say after such a survey of the science and art of dental and oral surgery, that the skillful and studious practitioner of this specialty is not a surgical scientist and a co-laborer in that beneficent art whose progress has been illumined by Hunter, Bilbroth, Paget, Parn, Mott, Van Buren, Wood and others, whose names, though equally famous, would fill my paper to overflowing. I maintain that no man of even average intelligence can become a thorough dentist without at

the same time becoming a pretty good physician and surgeon. He should, by all means, possess the general knowledge of the average practitioner of general medicine, and in addition, he should have the general knowledge and mechanical talent necessary to treat the peculiar class of cases brought before him as a surgical specialist. There is a special necessity for general medical knowledge in a certain direction, to which I desire to call attention. Every educated dentist is now supposed to familiarize himself with anæsthetics and their method of administration, but, unfortunately, he is not expected to know very much about those conditions which contraindicate their use. There are various morbid conditions of the heart, lungs and kidneys, which the merest tyro might discover by a little attention, and which I fear, often escape the attention of the dentist. I believe that no one should ever give an anæsthetic who is not qualified to make a fairly accurate estimate of the condition of the heart, lungs and kidneys; yet this is often done in the dentist's chair. Much can be determined by careful observation of the patient's general appearance. I recall several cases in point: A friend of mine and a competent dentist, undertook the administration of chloroform for the purpose of extracting a carious tooth. He was assisted by a lady physician who considered herself well qualified. The affair did not concern me, but as I had an adjoining office I happened to get a glimpse of the patient's face, and decided to remain within call. Hardly had the anæsthetic fairly begun its work before the stertorous breathing of the patient alarmed my friend so that he called me to his assistance. It was high time, for if ever a patient was on the verge of death from asphyxia and heart paralysis, this one was. I succeeded in resuscitating her, but she subsequently passed through an attack of renal and pulmonary congestion that well nigh ended her life. The puffy eye-lids, red face and feeble circulation of this patient should have warned my friend of the danger of vasa motor paresis to which this patient was exposed, and should have suggested an urinalysis which would have developed the existence of chronic Bright's disease. I have since seen a similar case from nitrous oxide. In this case also, there was the sequence of acute pulmonary congestion, but in a patient who was phthisical. There is an old adage to the effect that "it is a poor rule that does not work both ways." The doctor should have some special dental knowledge. Some time ago I was consulted by a young man with a suppurative tumor of the jaw. He had been treated for some weeks by an aspiring surgeon who pronounced the case one of "actinomycosis"

and proposed to operate upon it. I discovered that the tumor was a phlegmonous inflammation secondary to a carious tooth, and which had existed for eight months. Dr. Austin, who saw the case with me, extracted the tooth to which I attributed the trouble, and in two weeks without further treatment, the case was well. Some of my friends who are present will recall this case, and the controversy in which I became involved on account of my inability to diagnose "the second case of actinomycosis ever seen in America."

As an offset to this case, I once saw a case which a dentist referred to me, for the purpose of having a tumor of the gum removed. I found a spongy, vascular growth the size of a hickory nut protruding upon both the anterior and posterior surfaces of the lower incisor teeth. On examination I discovered the tumor to be a mass of spongy and exuberant granulations due to the irritation produced by a mass of tartar about the incisors. Removal of the tartar with the application of nitrate of silver to the tumor cured the case completely.

A fact recently determined, and one which is of great importance, is the association of neuralgias of various kinds, and perturbations of sight and hearing, with carious teeth. This necessitates a certain amount of neurological knowledge on the part of the dentist.

In my presentation of the claims of dentistry as a surgical specialty, I do not wish to be understood as advocating the presumption of the rights and duties of the general practitioner by the dentist. A true specialist should render unto Cæsar those things which are Cæsar's—"i. e.: he must on proper occasion consult the general practitioner. I know of one individual who apparently attempts to monopolize the entire field of medicine and surgery. So many and varied are the cases which he collects for the gaze of the admiring public, that his office strongly reminds one of a dime museum representation of a chamber of horrors. Until quite recently this professional anomaly occupied the position of examiner to a life insurance organization. Imagine the sudden metamorphosis of the filler of teeth into the analyst of the urine. Versatility of talents is an admirable quality, but under certain circumstances its exhibition may be in decided violation of decency and good taste, to say nothing of the question of "loaves and fishes."

In passing, I will merely allude to the necessity for a knowledge of some of the natural sequences of pregnancy. The better class of dentists are of course familiar with the fact that dental operations are not always attended by

good results, and are sometimes absolutely dangerous in the pregnant state. This fact, although disputed by some, is of sufficient importance to merit most serious consideration. Even if disputed, the patient and not the operation, should have the benefit of the doubt.

To show, in conclusion, that I am not alone in my desire to see the profession of dentistry recognized as a part of general medicine and surgery, I may cite the existence of the dental section of the American Medical Association, present here to-day. More pertinent still, is the fact of the establishment of a dental section in the coming International Medical Congress. It is to be hoped that the dental profession will give this department of the Congress their most earnest and harmonious support, for, if it be successful, it will give the claims of the dental profession to surgical specialism an impetus that nothing else would afford.

The third paper on the programme was one by Dr. A. H. Thompson on "Pathological Heredity and Congenital Abnormalities of the Teeth."

In this section the work has been thorough, largely due to the efficient manner in which the officers have performed their work.

The nominees for the ensuing year are Dr. J. Taft, of Cincinnati, for chairman, and Dr. E. S. Talbot, of Chicago, Secretary.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

The nomination of officers for the ensuing year were Eli Van DeWarker, of Syracuse, N. Y., chairman, and E. W. Cushing, of Boston, secretary.

Dr. George F. French, of Minneapolis, then read a paper on

THE CHIEF SOURCE OF DANGER IN THE USE OF THE UTERINE SOUND,

in which he said:

It is the prevailing opinion of the medical profession that the principal danger to guard against in probing or sounding the uterus is traumatic lesion from incautious handling of the instrument. This is also the teaching, positively or negatively, of nearly all the leading books on gynecology, including Emmet, Thomas, Goodell, Mundé, Hewett and Courty.

Thus, Emmet says in the third edition of his "Principles and Practice of Gynecology:" "Many a poor woman has endured years of bad health from the carelessness of her physician in overlooking a latent cellulitis which became rekindled by the unskillful use of the probe or sound." In conformity with this view, Prof.

Dudley, in his recent contribution to "Pepper's System of Medicine," conveys at once his own opinion on the subject, as well as his impression of Emmet's teaching that traumatism is the danger to be averted, by quoting Emmet as to the dangerous use of the sound "from frequent lighting and relighting of pelvic inflammations by injudicious slight manipulations."

Writing on the same subject, Mundé says, "The precautions to be observed in using the uterine sound or probe are chiefly comprised in the two words, delicacy and gentleness."

So Grally Hewitt—fourth edition, "The Diseases of Women," writes, "As a general rule patients experience no inconvenience from the use of the sound if it be carefully introduced."

In the fifth edition of Thomas, Nonat and Scanzoni are cited to show that a far greater danger attends the use of the sound than is commonly recognized. From the context the reader would infer that the danger is from traumatic lesion, at least no other source of danger is referred to. Chrobak, in "Billroth's Handbook of Diseases of Women," in citing Broca's case of death following the use of the uterine sound, says, "the number of this class of cases published and unpublished is quite large, and the number still larger where a slight or severe illness ensues without a fatal result." When we consider the remarkable tolerance of the uterus of such surgical procedures as curetting, divulsing—not to mention accidental perforation—it seems that some more obvious cause must be sought. This prolific source of danger—and one comparatively unrecognized—lies in septic matter conveyed into the uterine cavity by the non-disinfected sound; a danger, which when we come to study the histological nature of the uterine cavity will be recognized beyond a doubt. We can all remember when traumatism was the bug-bear that deterred us from entering the peritoneal cavity; and when a healthy patient every now and then succumbed to cystitis (as the death-certificate read) after being merely catheterized, we regarded it as due to traumatic shock, but we have learned better and the rationale of a septic infection is now painfully easy to understand. Some surgeons, like Mundé and Tait, are so absolutely clean in their methods of doing surgical work, no septic results occur, though they are so unconscious of septic danger as to ignore its existence in their writings. Thus Mundé sounded the uterus 5000 times without a catastrophe, which only proves that Mundé practises better than he preaches; a criticism equally true of the pyo-salpingist of Birmingham. I would not detract one iota from the importance of delicate manipulation in exploring the uterine

cavity, but I maintain that the danger from traumatic lesion is completely overshadowed by that from septic infection.

Noggerath's doctrine of latent gonorrhœa is just beginning to be fully recognized, but instead of being an isolated, exceptional fact, it is one of a large group of facts which illustrate a general principle. From the researches of D. Berry Hart, Lindgren and Leopold, it has been demonstrated that the intra-uterine mucous membrane is really a lymphatic gland or a lymphatic surface intersected with glands and blood-vessels. To Hart belongs the distinction of being the first among English-speaking writers to systematically call attention to this comparatively unrecognized danger. He says: "The great dangers to the patient from the passage of the uterine sound are abortion and abrasion of the mucous membrane with absorption of septic matter and resulting cellulitis and peritonitis. Two cases of this nature are reported by Saenger of Leipzig. Manifestly a gonorrhœal pyo-salpinx might be communicated as readily by an infected sound as by the extension of the disease from the vagina. So to a septic pyo-salpinx-non-gonorrhœal, whether derived from the virus of erysipelis, pyæmia, diphtheria or scarlet-fever may be carelessly transferred from the gynecologist's hand to the sound, and give rise to a pelveo-peritonitis with more or less systemic infection.

Among the German authors, Fritsch has done signal service to emphasize these dangers, and forcibly says: "Always before introducing the uterine sound, dip it into a three or five per cent. solution of carbolic acid, even though properly cleansed directly after its previous use."

Although these words belong to the New Testament of medical belief, and were uttered several years ago, the momentous truth inculcated is as slow of appreciative recognition as the oracles of the inspired Semmelweis.

Dr. Hiram Carson, of Maple Hill, Penn., read a paper on

ABORTION,

stating it was his practice when there was hope of saving the embryo to rely on the use of anodynes to relieve pain and prevent contraction of the womb, but when he believed there was no hope of saving it and miscarriage would occur, he uses the sponge tampon in the vagina to prevent excessive flooding, and opium for its effect upon the nervous system, and then waited, sometimes months, until the mouth of the womb should open sufficiently to enable the removing of the ovum with the fingers.

He believes early dilation by tents and forceps to be dangerous, and never uses them, while with

the treatment spoken of he has never lost a patient or known of any other physician losing one.

He has never used antiseptics and does not believe there is danger of septicemia from absorption of putrid blood. Deaths not infrequently occur from the use of tents, causing metritis and peritonitis, and these can not be attributed to absorption of putrid blood.

He thinks the washing out of the vagina and womb with antiseptic fluid after the miscarriage unnecessary, annoying and sometimes harmful to the patient.

The author stated the principal object of his paper was to prevent the meddling with abortion cases that is likely to result from the teachings of the day, especially the use of tents and forceps, which have proved dangerous to the mother.

Other papers in this section were as follows:

"A Case of Tubal Pregnancy, with Specimen."

By C. R. Reed, Middleport, Ohio.

"Uterine Subinvolution and Aereolar Hyperplasia." By Joseph Eastman, Indianapolis, Ind.

"A Case of Pyosalpinx—Recovery without Operation. Remarks upon Vaginal Temperature in Pelvis Inflammation." By W. W. Potter, Buffalo, N. Y.

"Laparotomy as a Cure for Tuberculosis of the Peritoneum." By Ely Van De Warker, Syracuse, N. Y.

"Hysteria and Ovaries." By B. E. Hadra, Austin, Texas.

"Technique of Ovariectomy." By C. M. Wilson, Philadelphia, Pa.

"The Use of the Buried Continuous Animal Suture in Laparotomy and in Perineorrhaphy." By E. W. Cushing, Boston, Mass.

"New Form of Suture Pin for Use in Perineal Operations." By J. H. Kellogg, Battle Creek, Michigan.

SECTION ON SURGERY AND ANATOMY.

It was first moved and seconded that the section meet at 2 p. m. The nominations for officers resulted in the selection of Dr. Donald McLean for Chairman, and Dr. B. A. Watson, of Jersey City, for Secretary.

The first paper was by Dr. Andrews, of Chicago, on "Solution of Necrosed Bone in Spinal Abscess by Dilute Hydrochloric Acid."

Dr. H. O. Walker, of Detroit, Mich., read a paper upon "External Perineal Urethrotomy," reporting eight cases, in each combining with it internal urethrotomy.

Of the eighteen cases, reported one was operated upon twice, making nineteen operations in all. One died within a week following the operation, due to surgical kidney. Fifteen were relieved

entirely of all previous symptoms, and the remaining two were much improved, although some urinary distress still remains.

In all the cases there is a tendency to recontraction of the urethra, though not from a want of thorough division of the cicatricial tissue, as this was done in each case with the greatest care, and following out faithfully afterwards the introduction of full-sized steel sounds at stated intervals.

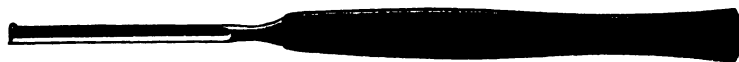
He also exhibited several instruments which he had devised and had made for him by Tiemann & Co., of New York. The first was a meata-tome (Figure 1), which presents at its extremity a rectangular cutting edge, with a probe point at its upper border.

The doctor deems the gradual stretching of the prostatic urethra a proceeding of importance, not only in exploring the bladder, but in temporarily

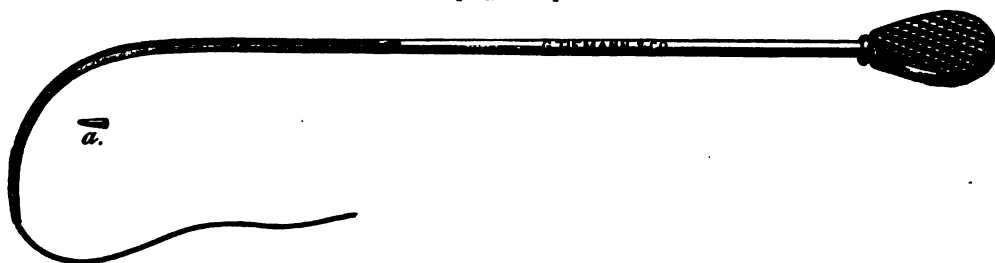
paralyzing that portion of the urethra, as it aids materially in relieving any cystitis that may and usually does exist in long standing cases of stricture of the deep urethra. For this purpose he devised the prostatic dilator as seen in Figure 4.

Figure 2 is a urethrotomy staff, to which is attached a whalebone filiform bougie, rendering its introduction easy and facilitates the completion of the perineal section with the triangular probe-pointed knife, as seen in Figure 3.

The instrument, as represented in Figure 5, consists of two parallel steel bars, the lower segmented near its distal end, and is held together by pivoted bars which can be separated or closed by means of a button screw. In the upper bar is a groove into which glides the knife, and when not in use is concealed by a small half bulb opposite the commencement of the curve. The distal used is two millimeters in diameter and tunneled,



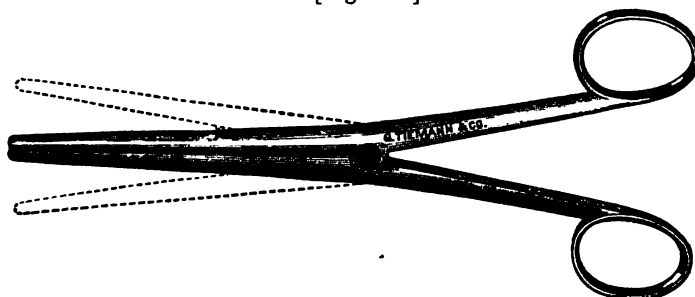
[Figure 1.]



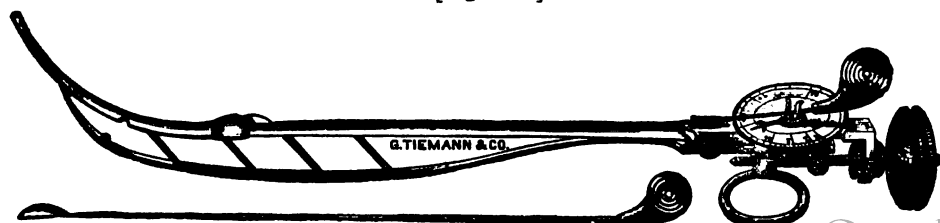
[Figure 2.]



[Figure 3.]



[Figure 4.]



[Figure 5.]

permitting it to glide over a guide, and by this manner we are able to cut the way through by pushing the knife forward from its concealment, and when it has passed the screw, dilating the urethra to the extent desired, that to be noted by the indicator, when the knife is drawn from behind forward and the cicatricial tissue divided. It will be seen that the instrument combines the properties of a tunneled sound, a dilator and a urethrotome.

In conclusion the doctor states that the accepted methods of treating strictures are by dilatation and incision, and that dilatation stands pre-eminent as a means of treating strictures in the great majority of cases. Yet it cannot be denied that the cutting strictures of large calibre has proved beneficial in many instances, and relieved many reflex troubles that would not yield to gradual dilatation. This is especially true of all strictures at or near the meatus. Although there is much weight of testimony in favor of the radical cure of stricture by incision, I am not as yet prepared to accept the statement, for I have cut many strictures dating back for a period of twenty years, and I do not know of any but will close up if not kept open by the occasional introduction of a sound. Old and tight strictures, that will not succumb to dilatation, are best treated by incision.

Dr. Robert Newman, of New York, gave a "Synopsis of a second hundred cases of Stricture of the Urethra treated by electrolysis." Dr. A. H. Wilson read a paper on "Prostate Gland; a review of its anatomy, pathology and treatment."

The discussion of these three papers was very animated, the bulk of opinion being in favor of the methods of Dr. Newman.

The paper on "Surgical Treatment of Suppurative Pleuritis in Children" by A. G. P. Garnett was read by Surgeon General J. B. Hamilton.

The author stated that it was his purpose to consider the comparative merits of the operation of removing the pus by the old method of the trocar and drainage tube, with the more modern one of resecting or excising a portion of one or more ribs, restricting this comparison to cases occurring in children. The operation for the removal of pleuritic effusion, whether of pus, serum or blood, was practiced by the ancients as far back as the time of the Hippocrates, but not until 1665 was the ordinary trocar introduced and draining the pleural sac by this means resorted to. Scultetus, one of the most ingenious surgeons of his day, was the first to use a drainage tube.

But, following the history of this instrument to the present half century, we find the late Pro-

fessor Gross says that in using the trocar in tapping the chest in empyema, out of 820 recorded cases but one death occurred from hemorrhage. Of 498 cases reported by Gunther in 1861, 302 were cured, 149 died and 16 were improved; and in 1879 Dr. Blake, of Boston, reported 18 cases operated on by incision as a means of introducing the tube, with 15 recoveries. It is to be regretted these cases were not classified according to age to show the relative rate of mortality between adults and children.

It is fair to suppose the majority of the cases reported were those of adults, and if such gratifying results were obtained with the advanced and chronic condition of the disease in the adult, how much more gratifying would have been the results had the operations been confined to children.

The author presented a statistical table, prepared by Dr. Godlee, of 34 cases of empyema in children treated at the Eastern Hospital, London, including four cases treated at Brompton Hospital, giving the age of the patient and result of operation. Briefly, it appeared that of the 31 cases reported as cured in the table, 25 were subjected to the antecedent operation of aspiration, and six primary resections. Four of the 25 were cured by one aspiration alone, and the remaining 21 all subsequently treated by removal of one or more ribs.

Had the plan of inserting and retaining the drainage tube been adopted at first it is more than probable not one of the 21 children would have been subjected to the operation of incision of the ribs.

The author quoted the experiences of Dr. Henry L. Bowditch, of Boston, as supporting his views, this gentleman having performed the operation of tapping the chest oftener, perhaps, than any other man now living.

He says he has never deemed excision of the rib necessary in children, and with his experience his judgment on this point should be regarded as conclusive.

Excision of a portion of one or more ribs for empyema as a substitute for, or supplementary to, the operation is comparatively modern date, Dr. Warren Stone, of New Orleans, being the first to perform the operation in this country.

The criticisms presented had reference to operation on young children exclusively, as the author desired to call attention to the importance of discriminating carefully in the surgical treatment of these cases between adults and children. He presented several cases as illustrating his views.

SECTION ON THE DISEASES OF WOMEN AND CHILDREN.

The following papers were read:

1. Epidermic and Hypodermic Medication of Infants, by J. A. Larrabee, of Louisville, Ky.
2. Scarlet Fever, by Dr. J. N. Love, of St. Louis.
3. Entero-Colitis, by S. E. Sperr, of Delafield, Wis.
4. Infant Feeding, especially with reference to subjects with infantile eczema, by C. Duncan Bulkley, of New York.
5. "The Cause and Treatment of Infantile Eczema," by J. V. Shoemaker, of Philadelphia.

The author stated this to be one of the most common diseases of early life, and, while always disturbing and frequently obstinate, was more amenable to treatment than the eczema of adults.

It may appear in a variety of forms, and may attack all of the integument, but most frequently attacks the face, scalp, neck, chest, buttocks and upper and lower extremities.

Infantile eczema is practically due to one of four causes; first, insufficient or improper food; second, imperfect assimilation; third, deficient excretion; fourth, external irritation. The author then gave same valuable advice as to treatment.

The following formula was found valuable in connection with a liberal diet by the mother.

If the infant cannot be nursed by its mother, the best substitute is pure cow's milk, unmixed with any other substance whatever.

Cases due to imperfect digestion and ural-assimilation require careful study. Change of air is sometimes beneficial, cod liver oil, syrup of the iodiate of iron and quinine were effective remedies, the author citing when each was of most value.

In the local treatment, where itching is a marked symptom, various soothing ointments may be used, and applications of cold water, vinegar and water, leadwater and laudanum, or a saturated solution of bi-carbonate of soda will be found grateful and calmate.

Where the disease has become chronic the affected region should be covered with a starch poultice, or with oil, to loosen the crust, which must be carefully peeled off. Then stimulating ointments can be used.

The author stated he had intentionally omitted stating anything regarding the use of arsenic in the treatment. Arsenic was occasionally requisite in treating obstinate forms of eczema in adults, but was positively injurious to children. He had discarded its use in treating children for nine years, and was delighted with the results.

6. Diarrhoea Infantum, By George Wheeler Jones, of Danville.

The nominations in this section were: For Chairman, Dr. F. E. Waxham, of Chicago; and Dr. W. B. Lawrence, of Batesville, Arkansas, for Secretary.

SECTION ON PRACTICE OF MEDICINE.

In this section the following programme was carried out:

1. The Treatment of Felon without Incision. By L. Duncan Bulkley, New York.
2. Antipyrin in Rheumatism; its Value and Mode of Action. By N. S. Davis, Jr., Chicago.
3. Acute Fatal Delirium; Its Differential Relations. By E. C. Spitzka, New York.

The nominations in this section are: for Chairman, Dr. H. B. Baker; for Secretary, Dr. Armstrong, of Memphis, Tenn.

SECTION ON STATE MEDICINE.

In this section the following papers were read and discussed:

- "The Necessity of Inspection of Food Animals." By Carl H. Horsch, New Hampshire.
- "The Medical Climatology and Hydrology of Northern California." By J. W. Robertson, California.

"The Chemistry and Physiological Action of Tyrotoxin." By Prof. V. C. Vaughn, University of Michigan.

SECTION ON MEDICAL JURISPRUDENCE.

"Expert Testimony." By John Godfrey, U. S. M. H. S., Louisville, Ky.

"Criminal Responsibility of Epileptics." By H. M. Bannister, Kankakee, Ill.

"The Intimacy of the Medical and Clerical Professions, with the Supremacy of the Former in the Sociological Sense at Least." By Rev. L. T. Jones, Moweaqua, Ill.

"Forensic Relations of the Puerperal State." By H. C. B. Alexander, Chicago.

"Expert Testimony." By Wm. C. Wile, Philadelphia, Pa.

SECTION ON OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

In this section the following programme was carried out:

"Nature and Treatment of Phlyctenular Ophthalmia." By Dudley S. Reynolds, Louisville, Ky.

"Results of a Year's Experience in the Abandonment of the Eye Bandage." By J. J. Chisolm, Baltimore, Md.

"The Causative Relations of Ametropia to

Ocular Disease." By J. E. Harper, Chicago.

"After-treatment of Cataract. Extraction." By W. T. Montgomery, Chicago.

"A Case of Epilepsy Apparently Cured by Correcting Hypermetropia," and "Two Cases of Tumor of the Optic Nerve." By Geo. E. Frothingham, Ann Arbor, Mich.

THURSDAY'S PROCEEDINGS.

THE GENERAL SESSION.

The Association was called to order at 10:10 a. m. Prayer was offered by Jno. H. Barrows, D. D.

The announcements of the Committee of Arrangements were made by Dr. Chas. Gilman Smith.

The Loyal Legion met at Kinsley's at 8 p. m., H. K. McKillop and B. K. Davis were made members by invitation.

The Ontario Medical Society sent a congratulatory telegram to the Association.

The report of the Nominating Committee was presented by Dr. Wm. Brodie, the chairman. The following officers were recommended to the association for election:

President—A. Y. P. Garnott, Washington, D. C.

First Vice-President—Duncan Eve, Nashville, Tenn.

Second Vice-President—Darwin Colville, New York.

Third Vice-President—Chas. J. O'Hagan, North Carolina.

Fourth Vice-President—A. Stedman, Colorado.
Librarian—C. H. Kleinschmidt, District of Columbia.

Treasurer—R. J. Duglison, Pennsylvania.

Permanent Secretary—J. S. Ranschoff, Cincinnati.

Trustees of the Journal—L. Connor, Detroit; E. O. Shakespeare, Penn.; W. T. Briggs, Tenn.

Judicial Council—J. Murphy, Minnesota; J. M. Toner, District of Columbia; J. R. Bartlett, Wisconsin; A. B. Sloane, Missouri; X. C. Scott, Ohio; A. W. McClure, Iowa; J. W. Stormant, Kansas. Vacancy occurring in the Council—J. F. Hubbard, Indiana.

COMMITTEE ON STATE MEDICINE.

Alabama—Jerome Cochran, Montgomery.

Arkansas—R. G. Jennings, Little Rock.

California—J. W. Robertson, Creston City.

Colorado—P. Brumund, Idaho Springs.

Connecticut—F. H. Whitmore, New Haven.

District of Columbia—G. W. Cook, Washington.

Florida—U. D. Phillips, Gainesville.

Georgia—T. S. Hopkins, Thomasville.

Illinois—E. P. Cook, Mendota.

Indiana—T. B. Harvey, Indianapolis.

Iowa—Geo. F. Jenkins, Keokuk.

Kansas—W. L. Schenck, Osage City.

Kentucky—Dr. Larrabee, Louisville.

Louisiana—T. G. Richardson, New Orleans.

Maine—Dr. Foster, Portland.

Maryland—G. H. Rohe, Baltimore.

Massachusetts—Grace Walcott, Boston.

Michigan—A. Alvord, Battle Creek.

Minnesota—C. W. Hewett, Red Wing.

Mississippi—T. R. Trotter, Duck Hill.

Missouri—Lester Hall, Marshall.

Nebraska—Wm. M. Knapp, York.

North Carolina—Eugene Grissom, Raleigh.

New Hampshire—W. Porter, Walpole.

New Jersey—B. A. Watson, Jersey City.

New York—A. N. Bell, Brooklyn.

Ohio—F. C. Bain, Kentucky.

Pennsylvania—A. C. Dunn, Pittsburg.

Rhode Island—W. J. Berry, Pawtucket.

South Carolina—Thomas Ligare, Charleston.

Tennessee—Richard Cheatham, Nashville.

Texas—J. H. Sears, Waco.

Vermont—S. H. Griswold, Rutland.

Virginia—H. M. Nash, Norfolk.

West Virginia—P. J. Rowan, Grafton.

Wisconsin—J. L. Bartlett, Milwaukee.

United States Navy—Dr. Bloodgood.

United States Marine Hospital Service—C. B. Goldsborough.

Dakota—E. M. Darrow, Fargo.

New Mexico—Ross Bailey, Las Vegas.

COMMITTEE ON NECROLOGY.

District of Columbia—J. M. Toner, Chairman, Washington.

Maryland—John Morris, Baltimore.

Arkansas—T. E. Murrell, Little Rock.

North Carolina—J. H. Tucker, Henderson.

Vermont—M. R. Crain, Rutland.

Kentucky—J. D. Brooks, Paducah.

Dakota—J. N. Weir, Fargo.

Kansas—H. C. Minney, Topeka.

New Jersey—J. F. Ill, Newark.

Illinois—E. F. Ingalls, Chicago.

Tennessee—J. M. Savage, Nashville.

New York—L. D. Trowbridge, Palmyra.

South Carolina—F. L. Parker, Charleston.

Minnesota—A. W. Strickfield, Eyota.

Iowa—J. M. Emmert, Atlanta.

Alabama—B. L. Wyman, Tuscaloosa.

New Mexico—R. Bailey, Las Vegas.

Florida—K. A. Lancaster, Gainesville.

Indiana—J. H. Hibbard, Richmond.

Louisiana—R. Matas, New Orleans.

Missouri—Dr. Dalton, St. Louis.

Michigan—Geo. E. Ramsey, Lansing.

Pennsylvania—Frank Woodbury, Philadelphia.

Rhode Island—Wm. J. Burge, Pawtucket.
 New Hampshire—J. W. Parsons, Portsmouth.
 Massachusetts—S. J. Belt, Boston.
 Virginia—L. Ashton, Falmouth.
 Ohio—H. J. Herrick, Cleveland.
 Wisconsin—J. T. Reeve, Appleton.
 California—J. G. Terry, Sacramento.
 Texas—R. W. Park, Waco.
 Colorado—M. H. Sears, Leadville.

The report of the Committee on Nominations was received and adopted. The Secretary announced the nominations of the following officers of sections.

Section of Diseases of Children—F. E. Waxham, Chicago, Chairman, and W. B. Lawrence of Batesville, Ark., Secretary.

Section on Oral and Dental Surgery—J. Taft, of Cincinnati, Chairman, and E. E. Talbot, of Chicago, Secretary.

Section on State Medicine—H. B. Baker, of Lansing, Mich., Chairman, S. T. Armstrong, of Memphis, Tenn., Secretary.

Section on Practice of Medicine, Materia Medica and Physiology—A. B. Palmer, Ann Arbor, Mich., Chairman, and N. S. Davis, Jr., Chicago, Secretary.

Section on Obstetrics and Diseases of Women—Eli Van De Warker, Syracuse, N. Y., Chairman, and E. W. Cushing, Boston, Secretary.

N. S. Davis gave notice that the Judiciary Council would meet at 9 o'clock at the Tremont House on Friday morning.

When the Section on Dermatology was called J. V. Shoemaker, of Philadelphia, offered his resignation. Various candidates were announced, but it was decided out of order and was referred to the section for new election. Dr. N. S. Davis said the adoption of the new amendments of the constitution made certain new machinery necessary, and among other things, the members from each state should meet and appoint two members to constitute a general committee, one to serve one year and one for two years, and this must be done to-day in order that the secretaries might report same to the association to-morrow. Dr. Bishop, of Pennsylvania, asked for information as to how it was that on yesterday the matter was spoken of as amendments to the by-laws, and to-day they appear as amendments to the constitution. He was in favor of the amendments, but did not favor the means used to carry them.

Dr. Davis replied that the report dealt, first of all, with amendments to the constitution, and after that with amendments to the by-laws, which had been distinctly stated in the report.

The President stating there being evidently a great deal of dissatisfaction concerning the report, and he desiring above all things to do right, he

would decide that the amendments to the constitution would not be adopted, but laid over for a year, and the amendments to the by-laws would be adopted and go into effect at once.

Dr. Roberts, Tennessee, moved any further action in regard to the next meeting of the Association be deferred until May, 1888. Dr. Davis seconded the motion, and offered an amendment to the amendment to the by-laws, that the nominating committee give names of three persons to deliver addresses to the association next year in accordance with the new by-laws. After much confusion the matter was adopted.

Geo. H. Rohe, secretary of the Rush Monument committee, read the report, from which it appears that \$389.00 had been collected, and \$143.08 expended for printing and the like.

The report was accepted and referred to a committee consisting of Drs. Grissom, Garcelon and Palmer for auditing.

Dr. Ranney, of Michigan, stated at the last meeting of his State Society \$100 was appropriated for this monument.

Dr. Keller, of Arkansas, chairman of the committee on cremation, was not present, and his report was read by Dr. Morris, of Baltimore. The report was as follows:

No facts of a practical character in addition to those so forcibly presented by the former committee have come to our notice during the year. A report made to the American Public Health Association at Toronto, last October, largely embodies the views of the committee. In that report it is stated that it is only in the case of sudden and violent symptoms of disease or a great epidemic that the failure of the ordinary modes of burial can be realized or properly brought to the notice of the people; that as long as such outbreaks do not occur no particular attention is given to the matter by the profession or the laity; that, inasmuch as cremation has not met with popular acceptance, a modified form of cremation called by Liebig cremacaulis might be adopted. This looks to the adoption of municipal and state laws compelling the use of destructive agents to bring about the rapid disintegration of the dead body. Caustic, lime, or chloride of zinc are especially adapted to this office. This process of immediate destruction of the dead body is particularly desirable in cases of persons dying of zymotic diseases. The burial of persons dying of these diseases should be placed by law in the hands of the health authorities. The old-fashioned triple coffin and the vault should be entirely discarded. Earth-to-earth burial should, as far as possible, be encouraged. As our cities increase, as our populations thicken, the evils of our present mode of burial will increase. In the

end it will be found that cremation is the truest, safest means of escape from the evils incident to the decomposition of the dead. The committee recommend the adoption of the following:

"Resolved, That it is the judgment of the American Medical Association that the burial of all persons dying of zymotic diseases should be placed by law under the control of the health authorities, and that in all such cases of disease chemical agents should be used by such authorities to bring about a rapid disintegration of the dead body."

Referred to the Committee on State Medicine.

Dr. Gaston introduced resolutions requesting the President to appoint additional physicians upon the yellow fever commission.

Dr. Rohe opposed the motion, but it was finally adopted.

The first paper read was the report of the Chairman of the Section on Obstetrics and Diseases of Women by F. M. Johnson, of Missouri.

Dr. Geo. H. Rohe, Chairman of the Section on State Medicine, read his paper on "Recent Advances in Preventive Medicine."

Dr. G. Knox, of Chicago, Chairman of the Section on Diseases of Children, read an address on "Diathesis and Disease in Early Life."

The report of the Treasurer was then read, showing the receipts during the past year had been \$21,723.22, and expenditures \$20,319.45, leaving a balance of \$1,403.77.

The report was received and placed on file. It was moved and carried that the Society subscribe \$10 for an Index Medicus.

The Librarian's report was received and adopted.

After considerable discussion the Association appropriated \$1,000 for the International Medical Congress.

On motion the Society adjourned.

SECTION ON DISEASES OF WOMEN AND CHILDREN.

Dr. H. Landis Getz, of Marshalltown, Iowa, read a paper on "Diphtheria." The author, stated that while this was a subject which had often been discussed by those having experience with the disease, many others had attempted to discuss it who had only had experience with "Ulcerated Tonsillitis," or what could be called "Homæopathic Diphtheria."

Admitting the disease to be of the zymotic class, highly infectious, slightly contagious, the chief early symptoms of which are malaise of a few hours' duration, with or without chills, followed by a slight fever. There is seldom vomiting or convulsions at this stage and the local

symptoms are so slightly painful or inconvenient as to cause the inexperienced to overlook the real trouble.

Physicians are often called to determine the reason for not feeling well as late as twenty-four hours after the membrane formation has set in, which he believes is always found to exist as early as any noticeable fever. The severity of the attack cannot be usually discovered by the constitutional symptoms found to exist during the first thirty-six hours, but is determined alone by the soil in which it develops, the blood and other elements in some systems affording barren soil which renders them proof against constitutional contamination, while in others it is fertile, and becomes rapidly saturated unless active measures are taken to destroy the germs of disease.

Consequently two classes of remedies are required—germicides and fortifiers. The former may be applied locally and termed direct or indirect; the indirect so altering the character of the blood that the germs perish on reaching it.

Fortifiers are: 1st. Such remedies as place the tissues in such condition as to prevent the lodgment of the disease.

2d. The second class of germicides are used.

3d. Remedies, surroundings and elements which tend to strengthen the blood and system, rendering it a nearly barren soil for the disease.

As the disease is a rapid one, terminating usually in four or six days, the treatment must be prompt and thorough.

There can be little doubt concerning the seat of disease, and, if not constitutional at the outset, becomes so, and the treatment resolves itself into local and constitutional.

If treatment is commenced within twelve hours from the commencement of the formation there should be no fatal results; if twenty hours you must expect to lose a patient occasionally, but if twenty-four hours have elapsed you must expect many fatal results.

The malignity of the disease depends more on the quantity than the quality of the germs and in prevention of their development lies the secret of success in treatment.

Owing to the mildness of the early symptoms it becomes the duty of the physician to examine carefully when a patient has been exposed to diphtheria, or if there is any slight trouble in the throat whether patient has been exposed or not. In difficulties resulting from cold the local symptoms in the way of pain will call the attention to the organ.

There is much diversity of opinion as to whether membranous croup and croupal diphtheria are not the same disease, but, properly

there is no such disease as diphtheritic croup (as croupal diphtheria is sometimes called), but it is diphtheria of a croup type involving an inflammatory condition and exudation of the larynx. The author gave a table showing that during a diphtheria epidemic in his city in 1886 there were 41 deaths (20 male and 21 female) out of something over one hundred cases reported, about one-third of the number being school children. The epidemic abated without any apparent changes in hygienic surroundings, water, etc., but the author thinks a factor for development of the disease exists in filth, and that, connected with certain atmospheric influences and tangible impurities, develops the disease.

The question of what remedies are best adapted in the way of drugs was answered—quinine and tinc. chlor. of iron. They are not new, but have not until recently been given the merit they deserve. In diphtheria the patient should, if an adult, have for first dose of quinine fifteen or twenty grains, subsequently 10 grains every 6 hours during the first 36 or 48 hours; after that enough to continue a slight ringing in the ears, care being taken to not overdose.

Tincture of iron may be used as a direct germicide and constitutionally as a fortifier by preserving the purity of the blood. It can be used as a local application varying in strength from one part of iron to three of glycerine and so on to full strength as the case requires. Applications should be made by physician personally, when possible, twice or three times in twenty-four hours. Twenty drops of the muriated tincture should be given adult in teaspoon of water every two hours as long as the stomach will stand it; if stomach becomes irritable lengthen the intervals. Hot applications are thought injurious, causing more rapid development of germs. Stimulants may be given when necessary. Ice may be used in the mouth. The main feature in the treatment should be even remembered by the physician, that to insure success, medicines, stimulants and food must be given on the hour and all local applications made by the physician himself.

Papers on the following subjects were read, in addition to the above:

"New Method of Treating Congenital Phymosis." By W. S. Stewart, Philadelphia, Pa.

"Intubation of the Larynx with Inferences from one hundred and thirty-three Cases." By F. E. Waxham.

SECTION ON PRACTICE OF MEDICINE.

Dr. G. W. McCaskey of Ft. Wayne, Ind., read a paper on "A New Method of Intra-Puimon-

ary Medication" with remarks on its use for pneumatic treatment.

The author first elaborately reviewed the evidence tending to prove that medicinal agents can be introduced into the air cells with the inspired air, and then proceeded to discuss the question under what forms and conditions can various medical agents be introduced in such way as to insure their influence on the deep bronchial structures.

He was not in favor of powders, gases or sprays for introducing such medicinal agents. He relies on saturated vapors temperature 158°F., or in exceptional cases, a somewhat lower temperature. The air saturated at this temperature is about one-third vapor, and with a comparatively cool respiration the lung reduces the temperature to 113°F., and about 69 per cent. of its deposit would be vapor.

The author uses a special apparatus which was exhibited to the Section, and consists of a double walled chamber, capacity one cubic foot, the hot air of which can be saturated with the vapor of any soluble agent. Expiration is carried on continuously by a combination of valves; the patient inspiring from the chamber and expiring into the air of the room.

He uses a wet and dry bulb thermometer to determine when saturation is complete, and also to lower the maintenance of uniform temperature. Its use with the pneumatic cabinet the author believes to be of great advantage. He has had considerable experience in the treatment of bronchitis and phthisis and, apparently, has had more gratifying results than are usually obtained with the pneumatic cabinet alone.

The following papers were also read and discussed:

"A Convenient and Practical Method of Administering Burgeon's Treatment." By Byron H. Daggett, Buffalo, N. Y.

"New form of Apparatus for the Administration of Gaseous Enemata." By J. H. Kellogg, Battle Creek, Mich.

"Geranium Maculatum." By John V. Shoemaker, Philadelphia.

"Etiology of Typhoid Fever as Observed in Country Practice." By L. N. Davis, Farmland, Ind.

BUSINESS IN THE OTHER SECTIONS.

The following programme of papers was carried out at the meetings of the various sections:

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

"Intra-Uterine Therapeutics." By W. S. Caldwell, Freeport, Ill.

"Cystitis in the Female." By H. O. Marcy, Boston, Mass.

"Lithiasis in Pregnancy." By J. E. Kelley, New York, N. Y.

"Erosions vice Ulcerations of the Vagina. Portion and their Relation to Laceration of the Cervix, with Practical Hints when not to Perform Emmet's Operation." By John A. Miller, San Francisco, Cal.

"Sudden Death in Labor and Childbed." By Fayette Dunlap, Danville, Ky.

SECTION ON ANATOMY AND SURGERY.

"Laparotomy for Penetrating Wounds of the Abdomen." By T. A. McGraw, Detroit. (A lengthy abstract of this paper appears elsewhere.)

"Injuries of the Abdomen and their Proper Treatment." By N. B. Carson, St. Louis.

"Pathology, Diagnosis and Treatment of the Appendix Vermiformis." By J. McF. Gaston, Atlanta, Ga.

"Calculi in the Appendix Vermiformis." By R. H. Reed, Mansfield, Ohio.

"New Method of Testing the Relative Value of Certain Antiseptics, Disinfectants and Germicides employed in the treatment of Wounds and Syphilis." By Jos. Jones, New Orleans.

"Wound Dressing: Some Notions Accepted and Some under Discussion." By G. E. Stubbs, Philadelphia, Pa.

SECTION ON OPHTHALMOLOGY, OTOTOLOGY AND LARYNGOLOGY.

"Evulsion as a means for the Radical Cure of Pterygium." By J. W. Wright, Columbus, Ohio.

"Function of the Oblique Muscles in Certain Cases of Astigmatism." By G. C. Savage, Nashville, Tenn.

"Effects of Obliquity of the Correcting Lens to the Visual Axis." By Edward Jackson, Philadelphia, Pa.

"A New Form of Facial Frame." By Edward Jackson.

"Suppurative Inflammation of the Antrum of Heighmore." By E. Fletcher Ingals, Chicago.

"Treatment of Hay Fever," and "Treatment of Chronic Suppurative Inflammation of the Middle Ear." By Seth S. Bishop, Chicago.

SECTION ON ORAL AND DENTAL SURGERY.

"Sponge-Grafting." By W. H. Atkinson.

SECTION ON STATE MEDICINE.

"Scientific Collective Investigation of Diseases." By H. B. Baker, Lansing, Mich.

"The Chemistry and Physiological Action of Tyrotoxin." By V. C. Vaughn.

"An Inquiry as to the Mortality of Immigrants at United States Ports." By S. T. Armstrong, Memphis, Tenn.

"The Necessity for Inspection of Food Animals." By Dr. C. H. Horsch.

"Hygiene of Infancy and Childhood." By Dr. T. B. Greenley.

"Individual Hygiene of a Municipal Police Force." By Dr. G. Homan, St. Louis.

SECTION ON MEDICAL JURISPRUDENCE.

"The Medical Jurisprudence of Mental and Nervous Diseases." By S. V. Clevenger, Chicago.

"Paralytic Conditions in Relation to Testamentary Capacity." By E. C. Spitzka, New York.

"Report on the Present State of Our Knowledge concerning Concussion from Railway Accidents." By N. E. Brill, New York.

"A Claim to the Priority in the Determination of the Chemical and Microscopic Changes of the Blood in various forms of Malarial Paroxysmal Fever and the Application of the Results of these Investigations to Medical Diagnosis and Medical Jurisprudence." By Joseph Jones, New Orleans.

"Micrometric Measurement of Blood Corpuscles in Medico-Legal Cases." By Dr. Marshall D. Ewell, Chicago.

FRIDAY MORNING'S SESSION.

The Association was called to order at 10:30 o'clock. President Gregory in the chair.

Prayer was offered by the Rev. W. H. Vibbert, D.D.

The report of the Committee of Arrangements was read by the Chairman, Dr. Smith.

The Nominating Committee, through Dr. Brodie, reported that R. Beverly Cole, of San Francisco, had been selected to deliver an address on "General Medicine" at the next meeting; E. N. Moore, of Rochester, N. Y., to deliver an address on "General Surgery," and J. L. Colell, of Virginia, to deliver an address on "Public Medicine."

The following committee was appointed to inform the gentlemen of their selection, and, if necessary, fill vacancies: J. N. Toner, of Washington; Eugene Grissom, of Raleigh, N. C., and Dr. Colvin, of Clyde, N. Y.

Dr. J. B. Hamilton introduced the following:

WHEREAS, The President of the United States has appointed George M. Sternberg, surgeon of the United States army, to proceed to Mexico and Brazil for the purpose of investigating the methods there practiced for the prevention of yellow fever by inoculation; and

WHEREAS, This report will be accompanied by photo-micrographic illustrations of the appearances of all the principal organs of the body affected by yellow fever; therefore, be it

Resolved, That the Senate and House of Representatives be requested to cause such number of copies of Dr. Sternberg's report to be printed as may be needed by the profession of medicine of the United States. Be it further

Resolved, That the resolution on this subject passed yesterday be rescinded.

Dr. Wilson, of Boston, seconded the resolution.

Dr. Gaston was opposed to the resolution, on the ground that the action taken on the resolution of the preceding day was final, the motion to reconsider having failed. He thought it impossible for the Association to rescind the action of yesterday.

Dr. Hamilton contended this was a new resolution. He did not propose rescinding any resolution; but, if in the body of the resolution presented there is anything that rescinds the action taken previously, it is clearly in order.

Upon request the resolution was read by the Secretary.

Dr. Rohe, of Baltimore, favored the passing of the resolution, saying that President Cleveland had already done all that could be asked of him. Dr. Sternberg had been appointed and was already at work. It would be ridiculous to allow the resolution of yesterday to stand as the sentiments of the Association. He hoped the Association would pass Dr. Hamilton's resolution in such a manner that there could be no doubt as to the opinion of the Association.

Dr. Gaston moved, and it was seconded, that the resolution be separated.

There was call for the previous question, and it was put, and the resolution of Dr. Hamilton carried by a large majority.

Dr. J. S. Marshall, Chairman of the Section on Oral and Dental Surgery, read his report, which was referred to the Committee on Publication.

Dr. J. N. Quimby, Chairman of the Section on Medical Jurisprudence, read his report, which was referred to the Committee on Publication.

Dr. J. N. Beel, of New York, moved that committees referred to in Dr. Quimby's report be appointed.

The following gentlemen were named as a Committee on Criminality of Feticide and Measures for its Prevention: J. N. Quimby, of New York; W. B. Atkinson, of Pennsylvania, and W. H. Byford, of Illinois.

Duties Commonly Exercised by Coroners: H. O. Marcy, Boston, Mass.; J. H. Burge, New York; W. W. Dawson, Ohio.

J. M. Toner, of Washington, read a brief report of the Committee on Necrology, which proposed to get out a necrological report for the last ten years.

The committee to audit the report of the Trustees of the Journal submitted their report, finding everything correct.

Dr. N. S. Davis presented the report of the Standing Committee on Meteorological Conditions and their Relations to the Prevalence of Disease; also concerning the Collective Investigation of Disease in Coöperation with the Committee of the British Medical Association. He reported progress, and, on motion, the committee was continued.

On motion, the report of the Chairman of the Section on Surgery and Anatomy was referred for publication.

Dr. N. S. Davis introduced the following resolution:

Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education and a term of professional study equal to the best class of the medical colleges of this country, and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in general medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this Association on the same conditions and subject to the same regulations as other members.

In offering the resolution, he said he wished to explain the meaning of the resolution. The first object in the resolution is to relieve a degree of embarrassment that exists in the dental profession. Dental and oral surgery is as much a part of the field of medicine and surgery as ophthalmology or otology or any other ology. Our mouths and teeth are as important as any other part of our organization, and are used a little more than any other part. The embarrassment arises in this respect: Just who and by what line those engaged in this department shall be recognized as members of the regular profession. Now it is proposed to make a line and draw it where this resolution says. There is a more far-reaching and more valuable underlying object. If this resolution passes this body it will raise the requirements of all the dental schools in the country so that they can be recognized as members of the regular profession of medicine.

The resolution was unanimously carried.

Dr. Davis then offered the following, which, after some debate, was adopted:

Resolved, That the committee of arrangements are hereby directed at each annual meeting of the Association to so arrange the programmes regarding entertainments and receptions that the evening of the third day be reserved for a regular annual dinner under the following general regulations: The chief registration officer shall provide for each registration table a paper headed,

"Annual Dinners of the American Medical Association," with two columns for names, one headed tickets without wines or liquors at a specified sum; the other, tickets with wines, etc., at a specified sum; that each member when registering can have the opportunity to take a ticket for the dinner if he desires it, and can be entirely free to enjoy the dinner not only without using wines, but, also, without being required to assist in paying for that drunk by others; while those who desire the addition of wines will enjoy the same liberty. It shall be the duty of the committee of arrangements to select a proper place for the dinner, to ascertain the cost per plate on the plan already indicated, that the price paid for the tickets will pay the entire cost of the dinner, leaving no part to be paid either by the local profession or by the treasurer of the Association.

Dr. Wilson, of Boston, moved that an appropriation of \$300 be given to the permanent Secretary. Dr. Davis objected to the motion, saying that the expenses of the Secretary were paid, and that every dollar that could be raised should be put into the Journal. The first year he had not a dollar, and since then it has been less than \$1000 per year. He offered the following resolution as an amendment to the original resolution:

WHEREAS, It has been the unwavering policy of the Trustees for the publication of the Journal to enlarge and increase the value of the Journal as fast as the income of the Association will permit; therefore,

Resolved, That said Board of Trustees be a Standing Committee on Finance, to whom all propositions for the appropriation of money made hereafter shall be referred and reported upon before final action on the same by the Association.

Dr. Quimby—I rise to a point of order. There is a resolution before the house, and you cannot move a substitute.

Dr. Davis replied that his resolution was an amendment to the original resolution.

The motion was put on the amendment and carried. The original resolution failed.

Dr. J. N. Toner offered the following resolution as an amendment to the by-laws:

Resolved, That hereafter the Presidents of all such State and Territorial medical societies as are entitled to representation in the American Medical Association be recognized as Honorary Vice-Presidents of this body and entitled to seats upon the platform.

Dr. Jennings—It's a very fine thing in its appearance, but it would be rather over-doing the thing. While we honor the officers of the State associations, they are honored as much as they can be by becoming members of the American Medical Association. I can see no reason why the platform should be filled up with the officers of State societies. I think we have enough speakers on the platform now, for most of the business is transacted there.

Dr. Colvin—That might be very well for every State in the Union except New York. I should dislike very much to see the President of the New York State Medical Society on the platform.

Dr. Roberts moved to lay the resolution on the table. Carried.

Dr. Roberts moved that Dr. Brodie be made a committee of one to return thanks to those to whom thanks were due. Carried.

Dr. E. A. Wood introduced the following resolution:

Resolved, That a special committee of three be appointed to report on the subject of Dietetics at the next annual meeting.

Carried; and the following were named as the committee: Drs. Wood, Whittaker, and Woodbury.

The President appointed the following committee to draw up a form of law to secure uniformity in medical legislation, and to report to the Section on State Medicine next year: P. H. Millard, H. A. Johnson, R. H. Plummer, C. B. Belt, and C. W. Dullen.

Dr. T. E. Woodbridge introduced the following:

Resolved, That the President of this Association be requested to appoint a committee of three, whose duty it shall be to investigate thoroughly the whole subject of health resorts and mineral springs and report on their comparative value to this Association.

It was referred to the Section on State Medicine.

Dr. Brodie—It is always a good thing to be thankful after you have received something that you ought to be thankful for. I think we ought to be thankful for the beautiful Chicago weather we have had, and to the Committee of Arrangements, and especially to the Committee on Transportation for influencing the railroads to let us return on one-third fare. I think we should be especially thankful to THE CHICAGO MEDICAL JOURNAL AND EXAMINER for the full and complete reports we have had each morning. Of course we should be thankful to the Secretary, for he gets nothing but thanks. But then he is a rich man, any way—a pretty good fellow, whose expenses are all paid, and he makes out his own expense account. (Great laughter.) Finally, our especial thanks are due to our worthy President for the exceeding courtesy with which he has ruled over our deliberations. Gentlemen, we are thankful for everything.

President Gregory, in adjourning the meeting, said: "My work is finished—I wish it were done better. But it has been done as best I could. There is nothing remaining for me to do but to say, Thank you, good-bye, God bless you. I would gladly intro-

duce to you your new President. But this is out of the question. I learn that he is a man—that he possesses those qualifications which will be in keeping with the men who have gone before him in this office. He is a man of culture, and endowed with those qualities of mind and heart that will insure success. I remember, thirteen months ago, the only man I envied was Dr. Brodie, the retiring President. I am proud to have been President, but I am glad that it is finished. It only remains for me, gentlemen, to add that you have honored me; you have trusted me; that you have been most deferential and indulgent, and if my heart had language it would gush. I must come to a close by offering my heartfelt thanks. The Society is adjourned to the second Tuesday in May, 1888.”

CHICAGO GYNÆCOLOGICAL SOCIETY.

REGULAR MEETING, *Friday, April 15, 1887.*

I.—H. T. BYFORD.—I. Curettes.

2. Round Ligaments from a Case of Alexander's operation.

II.—EARLE.—Cystic Sarcoma of Right Ovary.

III.—FINGER.—I. Proliferating Cystoma with Partial Intraligamentous Development.

2. A new Colpoplastic Operation for Defect of the Vagina.

3. Antisepsis in Abdominal Operations. Synopsis of a Series of Bacteriological Studies.

IV.—CALDWELL.—Enlarged Thyroid or Goitre a Cause of Transverse Presentation.

V.—TAIT.—Reply to Dr. M. Sanger.

THE PRESIDENT, CHARLES WARRINGTON EARLE, M. D., in the chair.

I.—DR. H. T. BYFORD.

1. *Curettes.*

I want to show three curettes, which I have had made to answer a specific purpose not as well met by any other instrument. The ordinary method of removing the retained placenta in abortion is by the finger when possible. I have done this quite often, and have devised this largest curette to take the place of the finger. It is rounded in all directions on the end, has a spoon-shaped opening, is strong and yet flexible in the shank. It can be introduced without much dilatation of the os, and can be bent so as not to require the cervix to be drawn to the vaginal orifice. The shape gives it the advantage of being a sort of a feeler, incapable of doing great harm even under strong pressure. When used as a scoop it can easily be made to scratch off tissue that is

not solid, that does not belong to the uterus, but it is not sharp enough to cut the uterine substance itself. The next, of medium size, is used as an ordinary uterine curette, which, although dull, is very strong, and capable of removing softened or degenerated mucous membrane. The firmness and thickness of this curette makes it different in action from the dull wire curette, which cannot be used with such force, or if used with force would be more apt to bruise the tissues. This smallest size is both for diagnosis and uterine curettement, and has the same characteristics; it requires scarcely any dilatation of the uterus, and will not cut healthy uterine tissue. I have left it unpolished on the end for the purpose of making it answer better as a palpator.

DR. JAGGARD: I do not think Dr. Byford's curettes differ from Mundé's in any essential particular.

DR. BYFORD: One advantage is that, being thicker and rounder on the end, it is not as capable of doing harm. Mine is scooped out in the shape of a spoon, and catches hold of particles better; I think it is more like Mundé's than any other. I have left the end unpolished for the purpose of a better palpation of soft substances. It is nickle-plated, although not polished on the end. I think the smaller one can be used with considerable success in feeling. I have used it at the office for the diagnosis between malignant growths and interstitial fibroids. By the amount of pressure we can use we get a knowledge of the bleeding surface, whether friable or solid. We can usually get some of the malignant growth or of the mucous polypi, but obtain nothing but blood from the interstitial fibroid.

2. *Round Ligaments From a Case of Alexander's Operation.*

I have here a specimen of the round ligaments, removed by the Alexander operation only a few hours ago. They are interesting on account of the extreme attenuation, which may account for some cases of failure in this operation. They are almost as thin as wrapping cords, and will give quite an idea of what some of these ligaments are after they are stripped of their fibrous coat and drawn out. In one operation which I performed there was just such a condition, and after a long, careful attempt to make them run, I broke one of them, and almost lost it. The other one I could not get entirely loose and only shortened it three-quarters of an inch. I met with one ligament twice the normal diameter, or over four times the diameter of this one; the opposite ligament in that case was about as thin as this one.

I have performed Alexander's operation six times.

II.—THE PRESIDENT.

Cystic Sarcoma of Right Ovary.

I have an abdominal tumor to exhibit. As the history of the growth of the tumor is interesting—as also an operation for hernia which was performed upon the patient—it gives me great pleasure to read a letter from Dr. J. W. La-Grange, of Marion, Iowa, in whose charge she was for some years. He writes, “I have attended Mrs. D—since 1882. During that time, she has had several attacks of nausea, vomiting and intense pain in the bowels and stomach, these symptoms usually subsiding in thirty-six to forty-eight hours. In August, 1884, I was called to see her and found her suffering from the usual symptoms of gastric catarrh, but the malady did not yield to the usual treatment and on the third or fourth day I found that she had an old hernia, that had come down, from the excessive vomiting and retching. The hernia was femoral and about the size of a small orange. Taxis failed to reduce it, even when the patient was under the influence of an anæsthetic. We advised an operation, but the patient refused, saying that by the use of warm applications it would go back itself as it had done on different occasions. The next day hot applications and taxis failed to reduce it, and the patient began to have stercoraceous vomiting. We urged the necessity of an operation, the danger of delay, but the patient would not give her consent. So the fifth and sixth days passed, during which the symptoms were even more alarming, but the patient would not yield to an operation. The seventh day the patient gave her consent, and while we were making preparations she had a fainting spell and the intestine slipped back. Then she exclaimed, ‘I told you so.’ She made an excellent recovery; a truss was fitted and she remained quite well up to November 21, 1884, when I was sent for again and found the hernia down. Taxis under the influence of an anæsthetic failed to reduce it; and hot applications were tried. Past experience made us certain of this fact that the gut on former occasions was not strangulated but incarcerated. So we delayed advising an operation until the fourth day, when the symptoms became so strongly marked that we again urged an operation, but the patient refused on the same grounds as before, and insisted that time and hot fomentations would cause it to go back. We waited, persisting in the local treatment, and every day urging the necessity of operating and the danger of delay, but were met by the old argument. The fourteenth day came and the patient was so weak and exhausted and the symptoms were so alarming that she consented to the operation. After cutting through

the skin and the fasciæ, to our surprise the contents of the bowels began to pour out in large quantity. We experienced great difficulty in opening the hernial sac, the different coverings having become organized into one common mass, thickened and interspersed with blood vessels. When the gut was reached it was a small knuckle of intestine lying in the bottom of the thickened mass. It was quite black and slight pressure with the end of the finger caused it to slip back into the abdomen. To our surprise the patient rallied and in a few days was convalescing. Everything she ate or took into her stomach passed out of the artificial anus; and there was no discharge whatever of fecal matter from the natural channel. The wound around the artificial opening healed kindly and the patient gradually gained strength, and by December 1st was able to sit up. December 25th she had a movement of the bowels from the natural channel. The discharges of fecal matter from the artificial opening gradually grew less and the opening healed up entirely in one week from this time. The patient remained well until October 16, 1886, when she had typho-malarial fever. In my examination at this time, I discovered in the right inguinal region a hardness, tender on pressure, outlines well marked, and involving the tissues of the right inguinal region and extending over the hypogastric region to the median line. The patient stated that she noticed this hardness first about a month previous (September 15, 1886). She had not menstruated for two months; but previous to this time had always been regular and the flow seemed to be natural. Examination of the womb revealed a large tumor, tense to the touch, involving the fundus, also a smaller one about the size of a hen’s egg, attached to the left side of the organ. The mouth of the womb pointed to the right of the pelvis, and the probe passed about one inch into the cavity of the womb. There was a slight watery discharge during the early weeks, but no odor. At this time I diagnosed the case as a fibroid with cellulitis, and prescribed hot fomentations and local application of iodine. She did not complain of much pain. In about a month her typhoid symptoms subsided and the hardness in the right side grew less, but the tumor continued to increase in size and the outline in the hypogastric region was well marked. About this time I called in consultation Dr. H. Ristine, of Cedar Rapids, Iowa. After a careful investigation of the case and a careful consideration of the rapid growth of the tumor, and general appearance of the patient, we diagnosed the case as fibroid sarcoma and gave a very unfavorable prognosis. Under tonic and stimulating treatment with pro-

per nourishment, her general health somewhat improved. Our treatment for the tumor was ergot by enema, with laudanum when needed to relieve the pain. Her chief distress was nausea and vomiting. During the latter part of my treatment there was a slight bloody discharge on two different occasions, which continued but a day or so, but there was no fetid smell. The growth did not increase as rapidly during the last month as when first noticed."

This lady came to Chicago about February 1, 1887, to consult Dr. W. H. Byford in regard to an operation. The malignant nature of the tumor being detected, it was not regarded justifiable to operate, and particular attention was paid to her nutrition and the relief of her pain, the details of which were left to me, as I lived in her immediate vicinity. She gradually failed, and finally died from inanition and exhaustion March 16th. Several convulsions took place during the last weeks of her life, probably from cerebral anæmia, and the aphthæ, which completely filled her mouth, were most remarkable. The autopsy was performed by my brother, Dr. Frank Earle. After the abdomen was opened we looked carefully for the condition of the bowel as affected by the hernia. We found a fold of the intestine directly in front of the tumor, extending from the left obliquely to the hernial sac on the right, its omentum being intimately attached to the tumor. The lowest point of the intestinal loop was connected to the hernial sac by a small ligamentous band. The neck of the hernial sac was not at all closed, and the finger could easily be introduced to the depth of two inches. A part of the tumor had so grown that it pushed up the intestine, and probably kept it from descending into the sac. Posteriorly the growth was adherent to the bowels and imbedded in the pelvis. One of the ureters was largely dilated, probably from pressure of the tumor. Apart from its malignancy it would have been impossible to have removed it. Microscopically it was found to be in the main a cystic sarcoma, although there was a small fibroid at the fundus, which Drs. La Grange and Ristine had detected. The point of origin of the tumor was apparently the right ovary. The fundus was pressed to the left and anteflected.

To recapitulate: We had here a case that had been more or less an invalid for five years. Symptoms for four and a half years, referable to the stomach; repeated attacks of gastric catarrh with nausea, vomiting and pain; a hernia which had given great trouble; and finally, a rapidly growing tumor filling the abdomen, first noticed about six months previous to death, which seemed to be caused by inanition and exhaustion.

DISCUSSION.

DR. W. H. BYFORD: I have not heard the history of the case heretofore, as it has been given by the letter read this evening, but I arrived at the conclusion, when I saw her first, that it was a sarcomatous tumor, from the rapidity of its growth and the great emaciation of the patient, together with the discharges, which were a little different from a fibroid or any other kind of a tumor. I do not think it would be very disgraceful in me or anybody else, to acknowledge a good deal of ignorance about sarcomatous disease. Certainly our knowledge is not as definite and extensive upon this subject as upon several other malignant and benign diseases. I do not think that it would be worth while to enter upon the discussion of sarcoma at present.

DR. DANIEL T. NELSON: I have but a single suggestion, and am hardly prepared to make it satisfactorily: A sarcomatous growth like a cancer, is likely soon to become fused with adjacent tissues. But, if it can be discovered early enough and removed by enucleation, it seems to me there is a possible hope of permanent recovery. The removal of the whole of the disease, as in any malignant disease, is the thing to be aimed at, and I believe there is a time in cancer and in sarcoma when it can all be removed. We do not generally find the patient at such a time, yet I believe that in the future our means of diagnosis will be so much improved, and our skill so much increased, that we will be able to diagnose these cases much earlier, and remove the growth when the patient can be cured, and it is to urge the careful study of the diagnosis in these cases, and the question of early operation when they are diagnosed, that I have risen. It seems to me that in these two diseases, especially sarcoma, an early diagnosis is of importance, and if an operation is ever to be done it should be done early.

DR. C. T. PARKES: I do not think I shall have anything to say on the question of sarcomatous tumors. In the history of this case there is one rather interesting circumstance mentioned; that is, the recovery after the occurrence of sloughing of intestine from strangulated hernia. It is outside of the question of sarcoma, but goes to confirm my experience, that cases of strangulated hernia that have been allowed to remain for some time, with ensuing sloughing of the intestines, are not always fatal, nor do they always require subsequent operative procedures. I have seen two cases of strangulated hernia that were supposed to be abscesses, but when the parts were operated upon, and the abscess cavity exposed, at the bottom of it were found sloughing intestines, and both of these cases, artificial anus in each, did

well and have recovered. The restoration was apparently complete, and up to the present time they have suffered no difficulty from the condition.

III.—DR. CHRISTIAN FENGER.

1.—*Proliferating Cystoma with Partial Intraligamentous Development.*

In addition to my remarks on parovarian cysts, at a former meeting of this society, I wish to present a specimen of a proliferating cystoma with partial intraligamentous or retroperitoneal development. It was taken from a woman 48 years old, operated upon March 22, 1887, in the Emergency Hospital. The photographs I pass around will show that the tumor was of enormous size. The abdomen measured at the umbilicus 132 centimeters in circumference, and from the xiphoid process to the symphysis pubis 63 centimeters: When, after tapping, the cyst was partially brought out of the wound, I found a very peculiar formation attached to the side of the cyst near the abdominal end of the enlarged Fallopian tube. As will be seen in the specimen passed around, it consists of a long, narrow cylindrical sac, 21 centimetres long and 4 centimetres in diameter. Its wall is almost transparent and half filled with a clear fluid. I have not been able to find described anywhere in the literature a similar appendix to any ovarian cyst. It seems to me likely to a reopened and dilated Morgagnian hydatid, the remnant of the terminal portion of Müller's duct. The retroperitoneal portion of the cystoma was enucleated as usual, leaving the large wound cavity with insufficient peritoneal covering. In this cavity Mikulicz's drain was used with a glass tube through its center. The last of the drain was removed on the 18th day, and the wound finally closed shortly afterward.

DISCUSSION.

DR. W. H. BYFORD: I would like to make a few remarks on the subject of this specimen, particularly with reference to the manner of treating parovarian tumors. I suppose there are very few instances of parovarian tumors in which they become pedunculated. We do infrequently meet with instances where there is a fair pedicle, but they are exceptions to the rule, which is that they rise from within the broad ligament and often carry up with them a layer of fibrous tissue. And instead of being pedunculated, they commonly lie in a cup-shaped excavation in the broad ligament, extending down into the ligament some distance. There is therefore generally no way of getting rid of them except by enucleation. As was stated by Dr. Fenger at our last meeting, the general subject of enucleation was probably

taught to Americans, at least, by Dr. Miner, of Buffalo. But at the time Dr. Miner wrote upon the subject we did not possess the same knowledge of the difference between broad ligament tumors and ovarian tumors that we now have. At that time we frequently confounded ovarian tumors with tumors of the broad ligament, and Dr. Miner did not confine himself to the consideration of this sort of tumor, but believed he was always enucleating a cystoma of the ovary when he removed a cyst from the abdominal cavity. We are now disposed to believe that most if not all his cases (he did not enucleate many) belonged to the variety of parovarian cysts. It is with the view of pointing out a few things in connection with the enucleation that I am now speaking. In practicing enucleation, as we have done heretofore, we make every effort, without much method, to get rid of the fibrous covering by tearing it off, without any special reference to the exact manner in which it is done. I have met with a few of these tumors in the last three or four years which have caused me to think differently on this subject, and made me to look more narrowly into the matter of enucleating them. About four years ago I was called upon to operate in a case of this kind in which there was considerable inflammation as well as a very thick coat of fibrous substance brought up with the upper layer of the broad ligament, enveloping the lower third of the tumor quite closely. In operating I found that by careful manipulation I could get out the cyst proper from the capsule without tearing down the side of it. The manipulation consisted in pushing the fingers down deep between the capsule and the cyst until they went below the tumor on all sides and in the center, when I found that I could get the sac entirely out, and in that instance succeeded in removing it without at all tearing down the sides of the enveloping capsule. I could then bring the edges of this cut-shaped stump to the external wound and stitch them to it. By means of a drainage tube in this cavity passing through the external wound I was able to drain off the fluid, while the whole raw surface of the hollow stump was excluded from the paritoneal cavity. I have done that operation myself now three times, and have seen it performed twice. Two weeks ago last Sunday I saw an operation at the Woman's Hospital, performed by Dr. Henry T. Byford, for removal of one of these broad ligament tumors. After emptying the sac with the trocar, so that it was relaxed, he lifted it up as high as he could with Nélaton's forceps, then took the knife and lightly cut through the fibrous covering until he could get his fingers through it, when it was enucleated as above described. The inside of

this cup-shaped pedicle or stump was entirely excluded from the peritoneal cavity, its edges were brought up to and included in the external wound and then a drainage tube introduced. This method of operating is always satisfactory, as, by making a perfectly close cup, the sides do not permit of the blood or serum getting into the peritoneal cavity. In two cases we found that no discharge came through the tube, hence it is probably not always necessary to drain. A remarkable thing in connection with the operations is that there is very little bleeding. In Dr. H. T. Byford's case the patient is convalescent, almost ready to go home; she lost less than four ounces of blood in the whole operation. There was no ligature placed upon any of the vessels. Dr. Fenger spoke of the operation being somewhat dangerous on account of the intestines. In this case the cæcum and the vermiform process were plainly visible upon the side of the tumor, but the fingers hulled out the capsule upon which they lay and left them perfectly free. I am convinced that these tumors can be cured as a general rule much more easily than by enucleation. I have not tried the process upon large tumors, but in small ones I make an incision through the abdominal walls, evacuate the tumor and leave a drainage tube in the sac. In four instances I have seen them cured in this way. These cysts are so simple in structure and have so little vitality that it is only necessary to drain them. Even tapping or aspirating them is sometimes sufficient. No dangers have arisen during the convalescence, and I am in hopes that the treatment of parovarian tumors on further experience will be very much simplified. I fully believe that evacuation and drainage of large parovarian cysts would be quite as successful as in the smaller ones.

3.—*Antisepsis in Abdominal Operations; Synopsis of a Series of Bacteriological Studies.*

(Preliminary Note, by Christian Fenger and Bayard Holmes.)

[NOTE.—This paper appears in another part of this issue as an original contribution.—*Editor.*]

IV.—DR. CHARLES CALDWELL.

Enlarged Thyroid or Goitre a Cause of Transverse Presentation.

June 1st, 1884, Mr. G— summoned me to attend his wife. On the way to his house he informed me that she was in labor; that a midwife was in attendance and had been for twenty-four hours; that his wife did not seem to be making any headway, but was becoming weak and exhausted, and the midwife was frightened, not

knowing what was the cause of the delay or what to do.

Her condition upon my entrance was truly frightful. She was in the midst of a labor pain, pulling the midwife's hands, straining every muscle, her whole face cyanotic, and her eyes protruding as if they would escape from their sockets. Exhausted she fell back gasping for breath.

It required but a single glance to perceive that death threatened this poor woman from two sources, *i. e.*, asphyxia and rupture of the uterus.

Bimanual examination revealed the fœtus in a transverse presentation. The os was fully dilated and the membranes had ruptured. The mother had not felt the movements of the fœtus for several hours and its heart sounds could not be heard.

Podalic version was performed without delay, by Braxton-Hicks' method. The feet were brought down, and during the next labor pain the second stage was completed. The third stage consumed but a few minutes and the uterus contracted well. The fœtus was large, but showed no signs of life. The heart's action had probably ceased several hours before.

After visiting my patient for three succeeding days, during which time her pulse and temperature remained normal, I saw no more of her, but her husband, whom I met the following week, informed me that she got up the fourth day and attended to her usual household duties.

Oct. 16, 1885, I was called a second time to attend Mrs. G— in labor, and as in the first instance, she had called a midwife, also as before, she had been under her tender care, or rather at her tender mercy, for twenty-four hours. Again the fœtus was in a transverse presentation with the right arm and prolapsed cord protruding from the vulvar orifice, for the membranes had ruptured. The cord was pulseless. The hand and arm were easily pushed up over the face and above the brim of the pelvis.

By combined manipulation, with the right hand in the vagina and the left over the abdomen, cephalic version was performed. The head was brought down into the first position and held there until by a strong labor pain it became engaged, when forceps were applied at the superior strait and the fœtus extracted during the next pain.

This fœtus was an unusually large one, and I regret it was never weighed. Dr. Jaggard, who utilized it for the cause of obstetric science, says it must have weighed nearly or quite 20 lbs. Her puerperium was normal as before, which means she left her bed the fourth day.

February 18, 1887, Mr. G—, for the third, and, I hope, the last time, summoned me and said his wife needed my services again; that

this time they had decided not to call a midwife first, but to send for me at once and give me a better opportunity to save the child's life. Examination revealed a third case of transverse presentation. Os was fully dilated, but membranes unruptured. Through the membrane, by vagina, could be felt both the feet and hands. The head was to the right and breech to the left. Fœtus was in dorso-posterior position. The placenta could be easily felt through the abdominal walls, and was attached to the anterior wall of the uterus, near the fundus. By external manipulation, I attempted to perform cephalic version before the membranes ruptured. The amniotic fluid was small in quantity, and I failed. Deciding upon podalic version, the membranes were ruptured, and a fœtus weighing twelve pounds was delivered in a few minutes, but not without considerable muscular exertion on the mother's part as well as on my own.

As I brought down the feet with the right hand and pushed up the head with the left, the abdomen of the fœtus rotated anteriorly. As soon as the body was delivered, I clasped the thorax of the fœtus with the left hand to prevent inspiration and asphyxia. The arms were then brought down, and with the assistance of the nurse, who raised the child's body up over the mother's abdomen, I seized the fœtus by the occiput and delivered the after-coming head without forceps. The child gasped a few times, and then began to cry, to the delight of its mother. Placenta was soon expelled and the uterus contracted firmly and well.

Puerperium as in the two preceding cases.

The patient who furnishes me with my theme was born at Königsberg, Germany, in 1852; was married in 1873, and is the mother of ten children. The oldest four were born in Germany—the others in America, during the last nine years. Her first seven confinements were normal, and she was attended by a midwife. Seven years ago the left lobe of the thyroid gland began to enlarge during gestation, but caused neither pain nor dyspnœa. Three years ago, during her eighth pregnancy, the right lobe began to enlarge, and increased in size very rapidly, producing both pain and dyspnœa, compelling her to take a semi-recumbent position at night instead of a horizontal one. During the last three months of gestation she sat bolstered up in bed at night. This posture, which she was obliged to take whenever she sat down, during the day as well as the night, produced a continued pressure on the fundus of the uterus, changing its long axis from a vertical to an oblique or transverse direction. Of course, the long axis of the fœtus must coincide with that of the uterus, and the

continued pressure on the breech or head, according to the end of the fœtal ovoid at the fundus, would force it into an oblique or transverse position, and also throw the lower end of the fœtus out of the pelvis and above its brim. The same position of the mother is maintained during labor as during the last three months of pregnancy, hence the fœtus remains in the same oblique or transverse position, and the lower end of the fœtal ovoid cannot descend below the pelvic brim.

It seems to me the above facts explain perfectly why the fœtus has been found in a transverse position, the three last confinements and never at a previous one.

In examining the obstetrical treatises at my command, I find no mention of enlarged thyroid as a cause of this presentation, but that it certainly is in this case I have not the least shadow of a doubt. The causes usually given are: Immature fœtus, contraction of pelvic brim, laxity of uterine muscles, excessive liquor amnii, twin pregnancies, etc., all of which can be excluded in this case.

The case has been quite interesting to me, for it is rare in my obstetric practice to meet with cases of transverse presentation, and I have *never* before seen it occur three times in succession in the same patient. I saw my patient last week, and find by measurement of the tumor at the largest point, that it has diminished more than an inch in its circumference in seven weeks, and that she can now sleep in bed with two pillows under her head. Dyspnœa is not alarming until the seventh month of pregnancy, but from that time until confinement it is excessive. This is hardly the place to discuss what mode of procedure should be followed in her case for her relief; and yet, as she is but thirty-five years old, it is very probable that she may become pregnant again, and possibly lose her life, if nothing is done to remove or at least reduce the size of the tumor, until it shall cease to be a source of such alarming dyspnœa.

I should be glad to hear the opinions of any of the Fellows who have had experience with this class of glandular tumors. From my own experience I should not be in favor of total extirpation, for I once saw a woman cross the river before the operation was completed.

Ligation of the superior and inferior thyroid arteries, partial resection, injections or electrolysis seem to offer better results, and are certainly much less dangerous.

DISCUSSION.

DR. D. T. NELSON: I have had one patient that this case reminds me of, in which no shoulder or other irregular presentation was the cause

of difficult labor, but a high promontory (and it seems to me with the experience I have had with abnormal presentations that a high promontory is a very common cause of mal-position), complicated by an enlarged thyroid, not to the extreme extent of the case reported, but such as to give the patient a great deal of inconvenience in the last months of pregnancy, and especially at the time of delivery. I have delivered her with instruments several times. The treatment I have adopted in her case for the enlarged thyroid, and with seeming benefit, has been the free use of ergot in the intervals between pregnancies. The gland will diminish greatly in size, at least in the intervals between pregnancies, as the pressure is taken off of the circulation. When she followed the treatment with some degree of faithfulness (she would not use the remedy with persistency), it seems to me that in two periods, when she did fairly well, continuing it for about two months, there was a more marked improvement than at any other time. I would suggest this to the Doctor, as I know of nothing else that is more likely to serve him, before he decides upon a surgical operation. In the acute enlargement of the thyroid, occurring in both sexes at puberty, though most frequently in the female, I have given ergot with excellent results, continuing it several months.

DR. C. T. PARKES: I would suggest, as to the treatment of this thyroid gland, that among the many methods I have seen adopted, the injection of a 5 per cent. solution of carbolic acid sometimes brings about a very rapid improvement, and decrease of the enlarged gland. An injection with a hypodermic syringe once or twice a week is not followed by any unpleasant reaction.

Dr. Sænger seems a little wroth that I should have regarded these subdivisions as absurd, but I still continue to do so, and I am perfectly certain that the position which I take concerning them will be admitted before long to be a just and accurate one. However antagonistic that attitude may be to Dr. Sænger, it does not justify him in using the language which he does.

He says, for instance: "Lawson Tait's practical results are so good that they have raised his conceit to so high a degree that on pathological questions he assumes a certain infallibility which vents itself in numerous sallies and attacks upon others."

I trust this is not true. My numerous sallies and attacks are not induced by conceit on my own part, but by misrepresentations on the part of others. Dr. Sænger himself forms an example of that misrepresentation. He says that "Lawson Tait has asserted that menstruation does not depend upon the ovaries but upon the tubes." This is a direct misrepresentation. It is not I who have asserted that menstruation does not depend upon the ovaries, but Ritchie asserted it and proved it before I was born. Reeves Jackson, of Chicago, has sustained the proof, so have Balfour, Melassey and a dozen more, but the proof does not yet seem to have penetrated the German mind. I have sustained the proof by abundant clinical examples, and some of my clinical work has indicated that the tubes have a large influence upon the production of the phenomena of menstruation. This is all I have had to do with the matter, and Dr. Sænger has no right to be so ignorant as to indicate any misrepresentation of this kind when he assumes the position of a dogmatic instructor.

Dr. Sænger says that my statements are reckless, and he expresses this concerning the statement of Cæsarian Section having a mortality of 99.9 per cent. I asserted that that *was* the mortality of Cæsarian Section. Dr. Sænger misrepresents me again in saying that I said it *is still* the mortality. I suppose that he must think I am alluding to some modification of his own which may have been in a small group of cases more or less successful. I alluded to nothing of the kind. I alluded to the past history through generations of this fatal operation, and every one, in this country at least, knows that not anything approaching one in a hundred cases recovers. This is not a reckless statement of mine, it is an opinion which has been displayed by every contribution to the literature of obstetrics during the last one hundred years in England. It induced Simpson to make his celebrated joke that "Cæsarian Section was not successful unless it was done by a cow."

V.—MR. LAWSON TAIT. *Reply to Dr. M. Sænger*, 51, 7, The Crescent;

BIRMINGHAM, England, March 4, 1887.

To Charles Warrington Earle, M.D., President of the Chicago Gynæcological Society:

SIR: I have just read Dr. Sænger's reply to a letter which I sent to the Chicago Gynæcological Society, concerning Dr. Sænger's divisions and subdivisions of pyosalpinx.

Dr. Sænger asks me if I have been taught nothing by the researches of Semmelweis and Lister, Pasteur and Koch. I do not know the first of the four. In Lister I have seen a humiliating example of an eminent man of science warped by a delusion and obliged to maintain absolute silence in face of adverse criticism. The researches of Pasteur and Koch have long since, in the opinion of many here been blown to the winds. The germ theory of disease and the details of practice which have been based upon it are such as suit the metaphysical tendencies of the German mind, and afford elaborate opportunities for subtle definitions and distinctions, as exemplified in Dr. Sænger's paper upon pyo-salpinx. These speculations, however, like others of their kind, are based upon the fallacy that the theories and facts of the process of decomposition are made to do duty for the theories and facts of the disease. But those of us who have clinical materials to work upon, and care to observe and carefully record clinical facts, know well that living tissue does not follow the same processes which infusions of dead meat do in the laboratory of the biologist.

If the cause of the salpingitis be the germ, which is so satisfactory to the mind of Dr. Sænger, why is it that the disease is confined absolutely to the tubes in the great bulk of instances? Why do we not have acute suppurating metritis? Why does not the inflammatory action extend all over the peritonenum and to every viscus in the body? What is there in the fimbriated extremities which has such a powerful antiseptic influence in arresting the progress of this all-powerful germ? All these absurd crotchets have fortunately had but a short hold on the English understanding, and their tenure is rapidly approaching an end.

I have neither time nor inclination to re-enter upon the controversy of the last ten years, in which I have taken an active share, in showing my reasons for the disbelief alike of the germ theory and practices based upon it. But I shall speedily have an opportunity of addressing myself to this question, and I shall take up the text of Dr. Sænger's utterances upon pyo-salpinx.

To a teacher of the germ theory such divisions of disease as Dr. Sænger seems to believe in may afford a large amount of comfort, but to the practical surgeon they are useless and delusive, whilst neither in clinical material nor in pathological research have yet found support.

I can not regard the man who seriously believes in the production of tubercular disease by the presence of a bacillus or its location in the tube by accidental contact with the vulva as being more rational or reasonable than the man

who believes in the bacillus of an earthquake. The whole blunder of the germ theory of disease has been the mistake of association for causation.

Dr. Sænger asks me what disease before the introduction of Listerism killed thousands of patients who had received wounds or who had been operated upon. I say that nothing more completely answers his question than the one word DIRT.

Dr. Sænger again asks me what is puerperal fever? We, in England, are beginning to understand that a whole lot of different things are mixed up under that term, and at present I am not prepared to say anything more definite about it than that our answer to this important question has been greatly hindered by this mischievous germ theory. Dr. Sænger says that this has been demonstrated and the other theory has been proved. We do not accept any one of these assertions. I am, etc.,

LAWSON TAIT.

P. S.—I have just seen the conclusion of Dr. Sænger's article, and regard as amusingly inconsistent the advice given with the example set by Dr. Sænger in the style of language he adopts. His statement that neither before nor after the operation do I concern myself with the nature of the disease treated, is absolutely untrue. Further, the statement that I admit that in every fifth case I make an error in diagnosis, is a gross misrepresentation of the facts. What I have said is that tubal disease can be easily diagnosed, but that differential diagnosis of the contents of the tubes whether they be serum, pus or blood, can not be made with certainty in more than four out of five cases.

If Dr. Sænger can do better than this, there must be one of three special explanations:

- I. He must be a heaven-inspired gynæcologist.
- II. Tubal disease must be very different in Germany from what it is in England.
- III. Or he is evolving the whole thing from his inner consciousness without any more real knowledge than his countryman had of the celebrated camel.

In conclusion let me say that when Dr. Sænger tells me that in Germany they have long since ceased to regard as serious my theoretical utterances, which pretend to be scientific, he is manufacturing the whole by a process of imagination. I have made no pretense to be scientific, and have advanced no theories. I have adhered rigidly to facts. It is Dr. Sænger who has invented the theories and mischievously stuck my name on them.

L. T.

W. W. JAGGARD, M.D. Editor,
2380 Indiana avenue.

THE CHICAGO MEDICAL SOCIETY.

STATED MEETING, JUNE 20, 1887.

The President, W. T. Belfield, M.D., in the chair.

Dr. Harold N. Moyer and Dr. Alfred Hinde presented a paper on

"PERIODICALLY RECURRING OCULO-MOTOR PARALYSIS,"

with the report of a case.

The patient had suffered from her seventh year with complete paralysis of the third nerve in all its branches. The attacks recurred at varying intervals of from four to six months and were always accompanied by headache and vomiting. The attacks have grown more frequent of late; and, since the earlier ones, recovery from the paralysis has not been complete.

The literature of the affection was given, and mention made of some sixteen cases so far reported. The etiology, pathology and prognosis also received consideration.

DISCUSSION.

Dr. W. F. Coleman : This paper is so excellent and unique, I certainly have nothing like it in my own experience to relate. I have perhaps fifteen or twenty text-books in English, German and American, but none of them refer to periodical paralysis of the motor oculi nerve, and I have seen no reference to it in any work on the eye. Isolated paralysis of the whole third nerve, even of organic origin, is a rare affection without involving other cerebral nerves. As the interesting point in the paper is the source and pathology of the disease, I will not undertake to discuss any other point. These cases are more interesting, if possible, to the general practitioner than to the oculist, on account of the connection between cerebro-spinal disease and paralysis of ocular muscles. The post-mortem in three cases showed that the nerve trunk itself was involved, which would point to an organic origin of those cases of periodic motor oculi paralysis, and I suppose in those cases relapses occurred from inflammatory exacerbations. I agree with Dr. Moyer that a large majority of the cases related would in all probability be functional. In his own case there were symptoms of migraine, viz., headache and vomiting, accompanying the motor oculi paralysis. Organic lesions of the brain, such as basilar meningitis, etc., are in the great majority of cases, say 75 per cent., accompanied by optic neuritis. Since in the sixteen cases related by Dr. Moyer there is no mention, I believe, of optic neuritis, I

infer the motor oculi paralysis was not due to organic disease of the brain, but to functional causes.

Dr. C. F. Sinclair : It has never been my experience to have met with a case precisely similar to that to which Dr. Moyer has referred, neither have I met with one in my reading. But it seems to me from the number of cases to which he refers, all with symptoms resembling one another in one or more particulars, and in all of which was found this element of periodicity, that we have almost data for the establishment of a new and definite pathological condition which would lead the way to very broad investigation in ophthalmic science. The paper is particularly interesting to me because one case to which reference has been made resembles in a very great degree one which came under my observation some weeks ago. It was a case of paresis of only one of the branches of the oculi motor nerve, but it was sufficiently marked to cause a high degree of ptosis. The element of periodicity was present in this case, and that, I take it, is the peculiar feature in the cases cited by Dr. Moyer. In the case to which I refer were associated with the paresis other peculiar and morbid conditions. My patient was a young woman, 17 years of age, of German parentage. When I first saw her I noticed at once a peculiar expression of the eyes, which I found came from the fact that one was a light, almost sky blue, and the other gray. She told me that three years previous both of her eyes had been dark brown and that two years ago the left eye began to grow lighter in color, changing to a light gray. That is a phenomenon which I must confess never to have heard of before, where the pigment in the eye of a person of that age has undergone such marked changes within a period of three years without any evidence of iritic inflammation to account for them. Dr. Moyer, I believe, mentions a case where this oculi motor paralysis had occurred in the spring successively on several different occasions. The attacks which my patient suffered occurred also in the spring, coming on each time in the same month and nearly the same day. When she came under my care she was suffering the third attack, which was precisely similar in every respect to the two preceding. There were several days of extreme languor and drowsiness, during which time there was an irresistible impulse to

cry on the slightest occasion. Then followed the ptosis, accompanied with severe neuralgic pain through the temple and over the vertex on one side, and at the same time a small infiltrated ulcer made its appearance on the lower margin of the cornea. The usual local means I found entirely unavailing in checking the attack. This case suggested to my mind the possibility, and the suggestion has been renewed with added force to-night, that as ophthalmic surgeons we are too apt to dwell solely upon the local manifestations of disease in the arteries, tunics of the eye and its appendages, and to limit our treatment entirely to local treatment. It seems to me that it is time for us to recognize the fact that in many of the morbid conditions of the eye which we have been accustomed to consider as altogether of local origin, the causation lies in reality much deeper, either in the great nerve centers or in diseased conditions of other and perhaps remote organs, and unless we direct our remedial measures to these our results can only be transient and unsatisfactory.

Dr. Moyer, in closing the discussion, said: Here, as in similar cases, we need to have an exact definition of what we mean by the term "functional." If we call only those lesions organic in which there is no absolute degeneration or destruction of the nerve cells, and speak of transitory congestion as "functional," then we must all admit that many, perhaps most, of these cases fall within the latter class. But the term used in its strictest sense—that is, in the sense that hysterical or reflex conditions are functional—then the only case so far as our observation extends, ever reported is the one described by Jacobi. Every case of the seventeen so far reported, including our own, has been progressive. The recovery earlier in the disease was complete after each attack. Later a certain amount of paralysis would remain. Mobius refers the paralysis to an inflammation or congestion of the nucleus of the nerve, coming on periodically, and which in time results in a certain amount or even total paralysis. The anatomical diagnosis is the most interesting feature of the case. We have purposely refrained from offering any theories of our own regarding the probable seat or nature of the difficulty; yet we confess to a strong leaning toward the theory of a nuclear degenerative process. As Dr. Coleman has pointedly said, this disease is not associated with any changes in the retina or optic disc, which rather militates against the theory of a basilar meningitis as the basic pathological condition. We must however admit that the two earliest cases that came to a post-mortem examination were basilar in their nature, and in the third

an enchondroma had impaired the integrity of the nerve.

Report:

"CANCER OF THE TESTICLE, WITH SECONDARY PLEURISY,"

with exhibition of pathological specimens, by Dr. John A. Robison.

The subject from which this specimen was obtained was a Frenchman, aged about 24 years, who was admitted to the Cook County Hospital May 1st, for a tumor of the left testicle, pronounced sarcoma, of eleven months standing. An operation was advised and refused, the patient leaving the hospital. A few days ago he returned with all the signs and symptoms of effusion in the left pleural cavity. The symptoms were so severe that I ordered him to be aspirated, and remarked that the product of aspiration would undoubtedly be bloody serum. So it was. The patient lived only a few hours, and the autopsy demonstrated that there was a large cancerous tumor, six inches in diameter, in the scrotum involving the left testicle; also, a tumor nearly as large in the abdominal cavity, with secondary cancerous deposits over the pleuræ of both lungs at the apices.

The symptoms of cancer of the pleura are always obscure, unless we have the history of primary cancer in some other part of the body. This is the fourth case of pleural cancer I have seen, the cause in these cases being respectively cancer of the kidney, as diagnosed by Dr. Fenger, cancer of the humerus, cancer of the liver, and the present case of cancer of the testicle.

The exudation in cancerous pleurisy is serum mixed with blood and tissue detritus, if the cancer granulations are degenerating. I believe the bloody serum is almost pathognomonic of cancer, as about the only diseases in which we obtain such a fluid on aspiration is in pernicious, or malarial, anæmia, phthisis and purpura, and even in these diseases the exudation is more likely to be purulent.

Two causes for the hæmorrhagic effusion have been assigned:

1. The effusion is the result of the breaking down of the cancerous granulations.
2. It is the result of the cancerous cachexia, where the blood is impoverished, the absorbent vessels weak and osmosis very rapid.

I am inclined to believe the effusion is due to inflammation produced by the presence of these foreign bodies—the granulations—and the breaking down of these granulations.

Remarks: These cases teach me this lesson: that oftentimes patients who suffer from cancer of some portion of the body amenable to treatment, frequently die of secondary cancer of the pleura,

which might have been averted had the primarily diseased tissue been entirely removed. This is certainly true of many cases of cancer of the genital organs, breast, bones, etc.

The specimens were then exhibited. They consisted of the original cancerous tumor of the testicle, the collapsed left lung, whose pleural surface was thickly covered by the reddish exudate, and the right lung, in the apex of which was a cancerous growth one and a half inches in diameter.

DISCUSSION.

Dr. H. A. Johnson: Cancer of the lungs occurs primarily but very rarely. I have seen two cases. Recently I saw a case which I supposed to be cancer of the lung in which there was primary cancer of the larynx. It was interesting as the only case I have seen where cancer of the larynx has been followed by secondary cancer.

Dr. Robert H. Babcock: I am particularly interested in the case just mentioned, especially in that part pertaining to cancer of the pleura. I was reminded of a case that it was my good fortune to see in Munich, by the remark that serum mixed with blood is almost pathognomonic of cancer of the pleura. In the hospital in charge of Von Ziemssen was a man who had been in several hospitals, and in whom Bamberger, in Vienna, had diagnosed cancer with pleurisy of the left side. The same diagnosis was made by Von Ziemssen and his assistant. I examined the case, and although I do not remember all the signs present, I remember being struck with the extreme flatness over all the left side, the absence of respiratory sounds, the resistance of the side. The assistant informed me he had been tapped and a bloody discharge obtained, which seemed to confirm the diagnosis. A day or two previous to my leaving Munich I inquired about this case. The man had died, and they found no cancer whatever, but a remarkable thickened condition of the pleuræ; the fibrinous deposit having become very highly organized. It was the oozing from the blood vessels which were severed in the tapping which had given the bloody discharge, and misled such celebrated men as Bamberger and Von Ziemssen.

Dr. Elbert Wing: I do not know of a case that is similar to this, but I remember a case which I saw diagnosed by the late Prof. Frerichs, of sarcoma of the lung, primary. The symptoms were those of severe, acute lancinating pain, and rapid development of the tumor, with no family history showing what the lesion might be. The physical signs were those of consolidation at the right apex. Everything else being excluded in the diagnosis, Prof. Frerichs said it was either a carcinoma or a sarcoma, and that as sar-

coma of the lung was more common he presumed it was sarcoma. After a post-mortem microscopic examination Prof. Frerichs' assistant said it was a case of sarcoma. Prof. Virchow's assistant said that it was carcinoma. It was probably one of those cases that are right on the border line between the two tumors, viz., sarcoma-carcinomatodes, and the examination was not complete. In regard to the bloody effusion, or fluid, in the pleural cavity, I happened to hear Prof. Frerichs say he always regarded that as an indication of tubercular pleuritis.

Dr. Frank Billings: The only thing of interest I have to offer is in regard to the color of the serum. Profs. Nothnaegel, Bamberger, and Kundrat, of Vienna, teach that bloody serum in any serous sac is due to (1) a malignant growth (carcinoma, sarcoma, etc.), (2) tuberculosis, and (3) to poisons that cause fatty degeneration of the walls of blood vessels and consequent capillary hæmorrhage (phosphorus). The presence of the bacillus tuberculosis would easily differentiate the first two causes, if the growth in the lung were primary carcinoma. The last cause would hardly be mistaken for the first two.

Dr. J. J. M. Angear: I do not know, Mr. President, that I have anything further to add to this subject, except as far as my observation goes, cancer of the pleura has always been secondary. I have seen cases of secondary cancer, not only of the pleura, but the sub-serous tissue of the pleura, the connective tissue around the base of the heart infiltrated with malignant growth, as well as the substance of the lungs. Bloody serum comes from extreme passive congestion—impoverished condition of the blood, as well as from the breaking down of the cancerous growth. Our knowledge of the primary cancer aids us greatly in recognizing the cachexia. Taking these two things together with a bloody serum in the pleura, the diagnosis of secondary cancer of the pleura becomes simple.

Dr. John A. Robison, in closing the discussion, said: The diagnosis of cancer was simply suggested to me by the nature of the tumor, the slow growth, and the amount of pain the patient had, etc., and finally the character of the effusion. The question that puzzles me most is, whether, when aspirating a patient we get this reddish fluid, it is not a pathognomonic sign of cancer. It has been my good fortune to have had an extended experience in the aspiration of a large number of patients, tubercular and otherwise, and in cases where I obtained well-marked physical signs of tuberculosis (it was before we examined for bacilli) never have I obtained this reddish fluid, and in all cases of cancer which I have aspirated I have obtained this reddish fluid. It was the same color

each time. I am groping about for an opinion, but would not say positively that when we get that kind of fluid the patient has cancer.

Dr. Robert H. Babcock reported

"A CASE OF PERICARDITIS AND ENDOCARDITIS."

Mrs. B., aged 23, Norwegian, consulted me April 30, 1887, complaining of præcordial pain and dyspnoea. History was as follows: Her mother died of heart disease; father in good health; youngest sister has heart disease as result of rheumatism; strong family predisposition to inflammatory rheumatism. After birth of only child, six years ago, patient was ill a year of rheumatic fever but had no knowledge of heart or lung complications at that time. Since fore part of last winter has been suffering with rheumatism in ankles, left knee and corresponding shoulder. For past three weeks has been unable to lie down because of pain in the chest and shortness of breath. No history of any lung trouble.

Her symptoms were acute præcordial pain, intensified by dorsal decubitus, pressure and full-inspiration; also slight joint pains. Cough troublesome, with mucus expectoration; sleep very broken; appetite poor; constipation; dry, coated tongue; no fever; pulse 120, feeble and unequal. Respiration short, hurried and sighing.

Examination of heart revealed impulse in fifth interspace outside of mammary line, feeble and preceded by a short thrill, a very marked pulsation in the third left interspace close to sternum, due to closure of pulmonary valves; considerable increase in all diameters of the area of præcordial dullness, particularly above and toward the left, where the lung border was retracted and fixed. Upon auscultation was heard a short, rough, pre-systolic murmur at the apex followed by a higher pitched systolic whiff, which latter murmur was propagated into the axillary region and on to the base of the heart. Over the body of the organ was also heard a rough sound of rolling characters, not unlike the rhythm produced by the hoofs of a galloping horse. Owing to the weakness and evident misery of the patient the lungs were not examined, a fact I now greatly regret. The diagnosis was acute simple endocarditis, supervening upon chronic endocarditis changes; mitral stenosis and insufficiency; pericarditis and possibly myocarditis; chronic inflammatory rheumatism. Rest in bed, hot applications to the præcordial, salicylate of sodium and digitalis in small doses were prescribed. In a day or two the digitalis was discontinued, however.

Under this treatment the pain in the chest was abated and the patient's condition improved, although the pains in the joints continued. At the end of ten days, upon her urgent solicitation, she was permitted to get up and lie on the lounge.

The pulse never became slower than 110 to the minute, which I considered a bad indication from the close of the first week. At the end of another ten days or so she took to her bed complaining of anorexia nausea, and inability to retain food. The tongue was heavily coated and dry, and slight catarrhal icterus developed. A few small doses of calomel, followed by an alkali and simple bitter, afforded prompt relief, and for the next week the patient appeared to improve in some respects. Her condition was tolerably comfortable by day, but by night she suffered much from restlessness, pain and dyspnoea. Repeated examination of the heart disclosed no increase of præcordial dullness, while the endocardiac and friction murmurs became even more intense and characteristic, except for a short time, during which the urine was very scanty. The lessened intensity was probably due to effusion, as very likely was also the abatement of pain. Under the effect of a diuretic the friction sounds reappeared with added distinctness. June 2nd she suddenly developed an acute attack of rheumatism of the left wrist and thumb joints, with coincident aggravation of chest symptoms. A double two and front-friction sound became remarkably distinct over and about all the ensiform cartilage. Temperature was 102 F. Salicylate of soda brought prompt relief from pain, with, however, but slight effect on the temperature. The urine, which was intensely acid, was rendered alkaline by bicarbonate of potash.

Sunday, at 2 o'clock, A.M., she was seized with a sharp pain in the chest and epigastrium, lasting two hours, only relieved by opium. When I visited her next day she was suffering much from dyspnoea and exquisite pain in the epigastrium. The lightest pressure could not be borne, while the abdominal walls were very tense. Satisfactory percussion and palpation were out of the question, and hence I was greatly puzzled to account for her symptoms. Her pulse was 138 and very feeble. cursory examination of the lungs disclosed mucous rales at right base posteriorly, and slight dullness below the angle of left scapula, with tympanitic note above. A loud, rough systolic murmur obscured the respiratory sounds, but the voice was heard with great distinctness. Hot applications to the epigastrium afforded relief to pain and the abdomen became less tense. At 11 P. M. of Wednesday there was sudden effervescence followed by profuse perspiration for the balance of the night. Thursday P. M. she was without fever and comparatively free from pain. Upon examining the chest I found the physical signs very much as three days before, except that there were moist, for the most part subcrepitant, rales over the area of dullness; voice very distinct. Cough was well-nigh im-

possible by reason of pain; the scanty expectoration had a slight brownish-red tinge. I made up my mind that I had a pneumonia to deal with which had sneaked in and escaped my notice. Further reflection, however, convinced me that this opinion was probably an error, and that there was a hydrostatic congestion with bronchitis.

The patient's strength steadily waned, and the following evening death closed her struggles. She and I were both handicapped throughout, as she had no good nursing, but was dependent upon the tender (?) mercies of indifferent neighbors. So far as possible, nevertheless, the treatment was supporting and anti-rheumatic, although in combating the rheumatism with potassium salts and salicylate of soda I had to exercise caution for fear of depressing the already weakened heart. Death took place from exhaustion.

A few more words and I shall have finished. The chief symptom complained of was in the præcordia and between the shoulders behind. This was probably due directly to the acute pericarditis which the autopsy showed had been limited to a small area on the anterior service of the left ventricle just below the origin of the aorta, and to the posterior aspect of the left auricle, which latter situation, it seems to me, would account for the interscapular pain. Since the necropsy revealed no cause for the epigastric pain and tenderness, it is reasonable to assume that these were reflected. I have since found a statement in Zeimssen's *Cyclopædia* to the effect that this epigastric pain and tenderness on external pressure is not an uncommon occurrence in pericarditis.

I of course suspected the existence of pericardial effusion, but did not at any time demonstrate its existence to my satisfaction, because, owing to the denudation of the heart already present, it did not influence the area of cardiac dullness and did not abolish the friction sounds, as I expected an effusion would do. I have since learned that, according to Ceuka, as stated by Bauer in Zeimssen's *Cyclopædia*, friction sounds have been audible even when the pericardium held a quart of fluid.

Within the left pleural cavity were, as was estimated, eight or ten ounces of serous fluid which I had not diagnosticated. Under favorable conditions this small quantity of liquid ought to be discovered, but in this case the conditions were complex and so modified physical signs as to mislead me. Had the layer of fluid been of sufficient depth to intercept the sound waves, on their passage through the pleural cavity, the complete or partial suppression of the respiratory and vocal sounds would have revealed the presence of the effusion. In reality, however, the

hypostatic congestion, discovered post-mortem together with the comparative condensation of the lungs, occasioned by the enlarged heart and effusion, produced a condition calculated to intensify the transmission of sound waves instead of deadening them. Hence, the distinctness with which I heard the rales, the voice and breath sounds, although, owing to the loud, harsh systolic murmur, I could not determine the quality of the respiration. The very intensity with which the mitral bruit was transmitted still further served to mislead me. Yet, it may be asked if the effusion was so slight, how could it give rise to a tympanitic percussion note above the level of the fluid? In fact, this sign in conjunction with the consolidation below, as I supposed, was very puzzling to me at the time. Reflection, however, enables me to explain it, I think. Tympany above the level of an effusion is explained by Gerhardts as being due to the relaxation of the lungs caused by the pressure of the fluid. In other words, the normal tension of the lung is lost. In this case, whereas the effusion alone may not have sufficed to occasion material relaxation of the lung, it was assisted to this end by the pressure of the heart in front, which, as shown by the autopsy, had crowded aside the anterior border of the lung where it had become fixed in its new position. Thus the normal lung tension was overcome.

Whether my failure to recognize the pleuritic effusion *intra vitam* can be excused on the ground of the complexity of the conditions present or not, it has proved a most salutary lesson to me; and it was in the hope that others might perchance profit by it that I have ventured to trespass so long upon your time and attention.

Post-mortem notes: Family prejudice prevented a thorough examination.

Heart.—There was about four ounces of clear, reddish serous fluid in the cavity of the pericardium (quantity estimated). The parietal layer of the pericardium was throughout its extent very greatly thickened and covered with projections and folds of fibrinous deposit, disposed in somewhat parallel ridges, running irregularly in direction, and most markedly present over the anterior and posterior surfaces of the sac; these areas corresponding in situation to similar ones in the visceral layer of the heart. Their appearance was partly villous and partly velvety. The visceral layer of the pericardium was also involved throughout its entire extent. The fibrinous deposit was thickest over the anterior surface of the heart, where it was thrown into folds and ridges whose general direction was at right angles to a line passing from base to apex of the heart. Many of these ridges were from two to three six-

teenths of an inch in height, and they were most abundant and largest about the middle of the anterior surface of the heart.

Over the posterior surface of the heart the fibrinous layer is, upon the whole, much thinner, but the projections are more distinctly villous, many being, in fact, severed bands of adhesion, and the general appearance somewhat reticulated.

On the anterior surface of the heart, immediately below the line of the aortic valves, there was a recent circular adhesion, one inch and a quarter in diameter, soft and easily separated.

Over the posterior surface of the left auricle the inflammatory process was evidently quite recent. Immediately above this spot the pleural surfaces were involved, and there was a small area just there of pleural adhesion.

The position of the heart was such that the right border lay transversely and the apex was three inches to the left of the median line. The heart had completely displaced that part of the lung which lies in front of the heart. The auricles of the heart were filled with dark firm clots, and the ventricles were approximately empty.

The endocardium of the left ventricle was of a dull, turbid, grayish color, mottled with occasional small, yellowish-gray points, but smooth and glistening.

There were vegetations upon the aortic valves disposed in a highly characteristic manner. Just below each corpus aurantii there were knots or clumps of vegetation about the eighth of an inch in diameter and height, somewhat pyramidal in form, and extending in a crescentic line from these points; along the so-called line of contact of the valves was a clearly marked row of smaller vegetations. The vegetations were most abundant on those segments of the valves which are opposite the point of origin of the coronary arteries. There were a few very small patches of fibrous tissue at the base of the aorta.

The anterior segment of the mitral valve was markedly thickened throughout its extent, and it was also moderately contracted. The posterior segment was similarly thickened and so adherent to the contiguous ventricular wall that only about one-fourth of an inch of its lower border was free. The edges of both segments were about one-eighth inch thick and studded with vegetations which had a distinctly granular appearance and feeling. The result of the contraction of the segments was a moderate stenosis of the orifice. The left auricle was greatly dilated and its endocardium thickened and studded with small irregularly-shaped fibrous patches. Its color was a turbid, yellowish gray.

The muscular tissue of the heart was dull, pale and flaccid. The thickness of the wall of the

left ventricle (muscular tissue alone) was one-half inch. The heart measured $5\frac{1}{4}$ by 5 inches, and weighed 1 pound 2 ounces (avoirdupois). There was a moderate dilatation of the ventricles, but the enlargement of the organ was more of the nature of an hypertrophy than a dilatation. Except as mentioned, the changes in the heart were not of special pathological interest.

Lungs.—There is a fluid in the left pleural cavity reaching, as the body lies, in the dorsal decubitus to the anterior axillary line. This fluid was not measured but was approximately eight to ten ounces, clear and slightly reddish. The lower border of the upper lobe of the left lung corresponded anteriorly to the third rib and was adherent. This line of adhesion, as well as a few others over the surface of the lung, was not of very recent origin, but yet was easily broken down. That part of the pleural surfaces, however, immediately next the base of the heart was very firmly adherent. In this lower part of the left lung there was a moderate degree and amount of hypostatic hyperæmia and œdema. There were a few old and moderately firm adhesions over the right lung. The spleen was of less than normal size and soft and degenerated. The liver was rather pale but in a state of moderate passive hyperæmia. There were a few very thin and not very recent bands of adhesion between its left lobe and the diaphragm. The other organs were not examined.

The diagnosis, limited to the organs examined, was: chronic pericarditis, serofibrosa, and endocarditis with recent acute exacerbations of both with effusion, chronic myocarditis, and chronic and acute circumscribed pleuritis of the left side with effusion and pulmonary hyperæmia and œdema; chronic pleuritis of the right side; circumscribed peritonitis (diaphragmatic), subacute splenitis, passive hyperæmia of the liver.

Dr. John A. Robison: I think Dr. Babcock was perfectly excusable in not detecting the pleurisy, because often times when there is not more than eight or ten ounces in the pleural cavity and no complicating disease, if the respiratory sounds are very intense, or if the lung has not been pressed upon to any great extent, there will be still a sufficient amount of resonance on that side to overcome any dullness the small amount of effusion will cause. I know in a great many cases it is a very puzzling question to a person making an examination to tell whether there is any fluid in the cavity or not by the physical signs.

STATED MEETING, TUESDAY, JULY 5.

The President, W. T. Belfield, M.D., in the chair.

Dr. E. B. Weston reported

"CASES OF SYNOVITIS OF THE KNEE JOINT."

Synovitis, though a surgical disease, is one which the general practitioner often treats—is often compelled to if he have a country practice—and there is no reason why he should not treat it well and successfully.

A slight synovitis may recover rapidly without treatment, and so these cases get well when treated with a poultice, or painted with tincture of iodine. But the physician who makes this his routine practice will not have many "flattering successes," and the number of cripples in his neighborhood may be monuments to his want of thoughtful attention.

I have four cases of synovitis of the knee to report. Not that they present points of peculiar interest, but to emphasize their importance, even though I disclose my own mistakes in doing so.

Case I.—A. B., Irish, aged about 50, laborer. I met him on the street Jan. 1, 1885, when he told me he had pain in his left knee; that he did not know of injuring it in any way. Having a physician's dislike for using "all out doors" for his office, and being consulted wherever he chances to meet a would be patient, I gave him little attention, and advice of a very general nature. One week later he sent for me. I found him in bed suffering severe pain, knee distended with fluid in joint cavity, leg flexed. He refused to have fluid evacuated, or even to have leg put on splint, although I plainly told him of the probable consequences of not doing so. Then, instead of leaving the case, I allowed him to be his own physician, while I continued to make daily visits and suggestions.

I have no full notes of the case, but it went from bad to worse. Abscesses formed in the thigh, which were opened as they developed, drainage tubes passed in various directions, the limb becoming honey-combed by the burrowing pus. These cavities were frequently syringed with carbolyzed water and the limb kept on a pillow of oakum. He was given a nourishing diet, stimulants and tonics. But he gradually lost flesh and strength, temperature increased, and on the 1st of March he died of sepsis and exhaustion.

Case II.—C. D., American, aged about 45, by profession a lawyer. First saw him March 4, 1886, when he told me his left knee had pained him quite constantly, but not very severely, for about ten days. He thought he had taken cold in it while sitting at his desk, under which he had felt a draught. I found knee moderately enlarged, joint distended with fluid and hot and painful. I ordered him to bed and had applied an anodyne liniment and warm fomentation.

This treatment was continued for three days without benefit, when I opened the synovial cavity with a bistoury and evacuated about eight ounces of light straw colored, probably nearly normal, synovial fluid. He was at once relieved of pain, the limb put on a well padded posterior splint, and an elastic bandage applied. The fluid gradually reaccumulated, and in four days the joint was again full, hot and painful. I now aspirated it and reapplied bandage. There was again a slight filling, but not sufficient to necessitate opening. The patient steadily improved, and in a few weeks had perfect use of the joint.

Case III.—E. F., a Swede, aged 25, painter. Feb. 19, 1886, at noon, while on his way to work he fell, striking his right knee on the ice. It caused him severe pain for a short time, but he worked the whole afternoon, standing on a step-ladder, without much discomfort. At night the knee began to swell and pain him intensely. When I saw him the knee was hot, very painful and moderately distended, and leg flexed. A liniment composed of opium, aconite and menthol was applied, with warm fomentation, and opium given internally. No improvement taking place, and the joint becoming much distended, on the 22nd instant I opened it with a bistoury, letting out a large quantity of blood-colored fluid. He was at once relieved of his intense pain. He made a steady recovery, and in about two months had perfect use of the joint.

Case IV.—S. H., aged 38, a carpenter. He had been at work on outside of building most of the winter, and of late had been obliged to kneel on scaffolding a good deal. When I saw him on Feb. 3d, he told me his left knee had been painful and getting stiff for sometime. It was then painful and contained a small amount of fluid. I could not convince him of the importance of giving it rest. I saw him occasionally during the following weeks, during which he was working about and simply using a liniment. On the 11th inst. the condition of the knee being decidedly worse, I told him unless he was willing to give me absolute control of the case, I should do nothing more for him. He was unwilling to submit, and I did not see him again for four days, when he sent for me. The joint was now moderately distended, and the patella floating. I applied posterior splint and elastic bandage, and the patient went to bed. Three days later, the joint being very full, I opened it with a bistoury, letting out a quantity of apparently unchanged synovial fluid. Immediate relief followed, and the bandage was reapplied. The patient was given quinine, iodide of iron, and the kidneys and bowels kept active. But the improvement was not permanent. The joint slowly refilled,

and in three weeks it became necessary to evacuate it. This time I used the aspirator, and an accident happened which I am quite sure will not occur to me again. Being ready to introduce the needle, I asked my friend, who was assisting—a most careful and intelligent physician—to exhaust the aspirator bottle. All being ready, I passed the needle into the tissues until the opening near the joint disappeared, when I requested my assistant to turn the stop-cock, and as he did so I thrust the needle into the cavity of the joint. I was startled by a shriek of pain; and I have rarely seen such an agonized expression on any face. The muscles of the leg instantly became rigid and prominent, and the joint increased in size, but no fluid appeared. Fortunately the probable cause of the trouble at once occurred to me. The bottle had not been exhausted but filled with compressed air. The needle was withdrawn, the aspirator made ready and the fluid evacuated as intended. The air which had been driven into the joint bubbled out with the liquid. But the cellular tissue of the thigh contained air which could be felt for two weeks, by which time it had disappeared, leaving no ill effects. Apparently the joint was not injured by its forcible distension, though in four days it had become filled again, and I withdrew with the aspirator fluid of the same appearance as before. In just one week, the other knee having become similarly involved, and the joint cavity very full, I aspirated it. From this time he steadily improved and made a perfect recovery.

I have intentionally omitted to speak of the anatomy of the knee, or of the pathology, diagnosis and classification of the cases I have briefly reported. But it would seem proper to treat them by pressure, absolute rest, and early, and if necessary, repeated evacuations. Barwell, whose reputation in diseases of the joints is certainly second to no man's, says: "If the inflammation be sufficient to cause considerable secretion into the joint, producing marked fullness of the sac, the synovial membrane should be punctured * * * to relieve the tension."

Howard Marsh, in his work on "Diseases of the Joints," says:

"It is now well known that matter, whether connected with acute or chronic arthritis, may be safely evacuated, with the result that the severe suffering, the prolonged fever, the wide and destructive burrowing, and the formation of sinuses, which were the common rule only a few years ago, can be generally avoided."

Dr. G. J. Tobias:

I think the paper is a very good one and the cases reported interesting. The doctor states that in two cases he made an incision before he

aspirated; I would ask why he did it, why not try the aspirator first? The accident spoken of has occurred before in this city, that of compressing the air in the bottle instead of pumping it out and producing a vacuum, thereby causing compressed air to be forced into the joint cavity, with some times most serious results. Would it not be a good plan to have some basin or small receptacle at hand containing water, to try the aspirator first and see that it is in proper working order? I wish he would also tell us more fully how he used the posterior splint and whether he padded it, the material used for bandage, etc.

The President:

I take it for granted that Dr. Weston took the ordinary cleanly and antiseptic precautions before incising the knee-joint. Most of us would be inclined to use the aspirator before making an incision, since it is a common observation that after the knee-joint has been aspirated once, twice, three times or more, resolution has occurred and the functions of the joint resumed even when the fluid was purulent. The accident in the use of the aspirator reminds me of one of which I am personally aware as occurring in this city, and which had a more unfortunate termination than in Dr. Weston's case, where most of the air got into the tissue outside of the joint. In the case to which I refer the stop-cock was not turned until the needle had entered the joint, and in three minutes the patient was dead.

Dr. E. B. Weston, in closing the discussion, said:

I used the bistoury instead of the aspirator because it was more convenient at that time. The bistoury has been used a good many times; but I don't pretend to say it is better, perhaps not so good; but in my case it was a matter of convenience. The cases did well. The posterior splint was well padded with cotton. I used for the splint heavy sole leather. An elastic bandage, or rather a flannel bandage, was used below the knee and on the thigh and a rubber bandage to make the pressure over the knee-joint. Of course the aspirator should have been tested. The mistake should not have occurred. And yet no injury was done by the violent distension of the joint, or by the air which entered it.

Dr. William T. Belfield reported

A CASE OF MERCURIAL NECROSIS, WITH SPECIMEN.

The case of mercurial necrosis that I wish to mention is that of a young man, apparently in excellent health, who seven years ago contracted a chancre which was followed by the usual symptoms of constitutional syphilis. He was treated by a regular physician in an eastern city, and for a year and a half had the usual history of a

healthy man contracting syphilis — mucous patches, occasional rashes on the skin, etc. After about two and a half years, during which time he was under constant observation and much of the time taking medicine, he had no further indication of constitutional syphilis. It went along that way for about four years. Over six years after the contraction of the chancre, he noticed a slight lump on the instep of the left foot which gave a little pain when he wore tight shoes. Fearing this might be an indication of the return of the disease, he went to his physician who prescribed syphilitic treatment. He ordered the young man to take one-fourth grain of yellow oxide of mercury pill three times a day. The patient, who was naturally anxious to overcome any taint that might remain in him, followed the direction faithfully, and for six months took one of these pills three times a day. At the end of this time his mouth became sore. About ten days after he first noticed the soreness of the mouth, being then in Chicago, he was directed to see me. At that time his gums were quite soft and spongy, his teeth felt loose and he could not bite bread with any comfort. On the left side the alveolar process of the upper jaw was exposed for about three-fourths of an inch in length and one-half inch in vertical breadth. The three molar teeth which were fixed in that portion of the jaw were decidedly loose. The hard palate corresponding to that part of the alveolar process was swollen and there were the usual symptoms of subacute periostitis. He was merely ordered to discontinue the mercury, use a simple mouth wash and take iodide of potassium. In the course of ten days the portion of the jaw exposed was so loose that it could have been removed without difficulty, but the patient, flinching from the slight pain this would cause, declined to have it removed and worked at it with his fingers until, about three weeks after I first saw him, he pulled the piece away. In the meantime he had lost three sound molar teeth. The piece is quite small, merely large enough for the insertion of the three teeth, but it is of some interest. The upper surface of it is the floor of the antrum. During a part of the time the cheek bone was swollen and tender but no abscess formed.

It may be questioned whether this necrosis was mercurial or syphilitic. The man unquestionably, seven years ago, had syphilis, but a little consideration shows that this necrosis was not syphilitic. In the first place, for four and a half years he has had no indication of syphilis; this little hardening of the instep, for which he took the mercury, still persists and is evidently not of syphilitic origin; furthermore, there was thickening and softening of the gums and loosening of

the teeth, which was due to the mercury; and, lastly, while syphilis may cause necrosis of the long bones and of many other bones in the body, yet it rarely causes necrosis of the inferior and superior maxillary; while mercury causes necrosis in these bones with especial frequency.

Dr. Beifield said, in reply to a question, that the patient had not been salivated during the time of treatment so far as could be remembered.

Dr. Joseph Haven exhibited

A MECHANICAL SUPPORT FOR MAINTAINING THE LITHOTOMY POSITION.

The position most favorable for the majority of the operations on or about the perineum is that which is known as the lithotomy position. The patient prone upon the back, thighs sharply flexed on the abdomen, knees separated. For the patient to maintain this position unaided, is a difficult procedure, and when under an anæsthetic an absolute impossibility. Hence the necessity for assistance in some form. The usual custom is to entrust each limb to an assistant to hold during the operation. To this procedure there are some objections:

First, it increases the necessary number of assistants by at least two. Usually the patient, if not the whole household, is dreading the operation with nervous anxiety, and the sight of a number of assistants or an unnecessary display of paraphernalia does not tend to quiet their fears or relieve their anxiety, hence operations at the house should be conducted with as little display as possible.

Again, any one who has assisted in holding a patient in the lithotomy position for an hour or so, knows that it is a tiresome undertaking.

Again, emergencies are continually arising where they are called upon to render other assistance, as from their proximity to the operator they are in the way of others, and are called upon to pass instruments, wash sponges, etc., thereby neglecting their *own work* and the falling of the patient's foot in the operator's lap does not tend to *better* the results of the operation or improve the temper of the operator. Consequently it is not strange that various appliances should have been improvised by which the patient could be held in the proper position.

My attention was first called to this subject some six or eight years ago. The operation was for the closing of a lacerated cervix. The operator brought with him an apparatus made of three boards, about four feet long, joined on the sides by hinges. When the side pieces were raised and fastened by hooks the whole formed a sort of trough in which the patient was placed and a harness arrangement bound each limb to the corresponding side piece. While the appa-

ratus worked well upon this occasion, there are still objections to it.

In the first place, it required too long a time to extricate the patient from the apparatus.

Secondly, the effect of putting together such a contrivance in the sick room might be similar to the building of a scaffold in the presence of the condemned.

Thirdly, blood stains are not easily removed from wood, and should there be any septic influence in the case this would be readily absorbed in the pores of the wood; and I doubt the advisability of using a wooden apparatus in repeated operations in close proximity to open wounds.

In a work entitled "Minor Surgical Gynecology," by Paul Mundé, the author speaks favorably of an apparatus designed by Dr. Hamilton, of Harrisburg, Pa., which he styles "Hamilton's Gynapod." This consists of a piece of wood upon which the buttocks rest; from this arises on either side an arm surmounted by a crutch which supports the knee. While being more simple than the apparatus previously described, some of the same objections hold good in this case. Again, as the limbs are not fastened in any way, it allows too much freedom to the feet. This will be particularly annoying if the operation be a trivial one, not requiring the administration of an anæsthetic.

If then an apparatus for this purpose is of service in these operations, what should be the essential requirements?

First—It should be so constructed that it can be instantly removed if emergency should arise.

Second—It should be of a material that will admit of its being thoroughly cleansed and disinfected.

Third—It should secure the patient firmly and at the same time be as simple, light and easy of transportation as possible.

Acting upon these thoughts, I had made, two years ago, an apparatus based upon the same principle as the one which I shall show you this evening, namely, a light nickel plated bar provided with a hinge in the center, allowing it to be folded up when not in use. This bar passes under the knees of the patient, holding them flexed on the abdomen by means of a band of webbing which passes around the shoulders of the patient; the webbing having a strap and buckle allowing the band to lengthen or shorten according to the size of the patient. Bands of the same material at either end of the rod securely hold the limbs below the knee; every strap being attached to the

rod by means of a snap catch, which can be instantly disengaged if occasion so demands. A rod attachment for holding a fountain syringe completes the outfit. The whole apparatus when not in use fits into a case eighteen inches long, five inches deep and four inches wide.

In this connection it becomes my duty, and at the same time a pleasure, to accord to Dr. Thomas B. McBride, of Philadelphia, the credit of having within the last few months devised an apparatus somewhat similar in principle to the one just described. A description of his apparatus will be found in the *Medical and Surgical Reporter* for May. He writes me that he has, since that publication, added the hinge, thereby lessening the length of the apparatus when not in use.

In conclusion, I will add that I have found the apparatus serviceable in all operations where the lithotomy position is indicated, and particularly when operating for slight lacerations of the cervix where no anæsthetic was administered.

The President asked Dr. Haven whether the apparatus answered as well when the patient was under an anæsthetic.

Dr. Joseph Haven:

It answers better. I have used the apparatus a number of times with an anæsthetic and several other physicians have used it. The patient is liable to come out of either before the operation is finished, and with this apparatus they cannot do themselves any harm during the operation.

Dr. Tobias asked Dr. Haven in how many cases of laceration of the cervix he had tried the apparatus, and if the patient ever raised any objection to its use.

Dr. Haven:

Probably twelve or fifteen. No objection has been made to the apparatus except in one case; but you will find that some patients object to any instrument. This patient asked me what it was, and when I explained that it was not an instrument of torture, she readily consented to its use. However, where an anæsthetic is to be given I do not usually put it on until the patient is anæsthetized, and they do not see the instrument at all. It can be put on in less than one minute and taken off in the same time. I very often use it in dressing wounds around the uterus, packing the vagina after opening a pelvic abscess where I do not care to employ an assistant to hold the patient in the lithotomy position, or for slight operations on the rectum,—anything that would not require an anæsthetic.

BOOKS AND BOOK REVIEWS.

A PRACTICAL TREATISE ON OBSTETRICS. Vol. IV. Obstetric Operations. The Pathology of the Puerperium. By A. CHARPENTIER, M.D., Paris. Illustrated with lithographic plates and wood engravings. This is also Vol. IV. of the "*Cyclopedia of Obstetrics and Gynecology*" (12 vols.), issued monthly during 1887. NEW YORK: WILLIAM WOOD & COMPANY. CHICAGO: W. T. KEENER.

Anything which even approaches in its nature a complete and critical review of so large and important a work as Charpentier's *Obstetrics*, is beyond the province of this journal, and general statements in this instance must suffice. Favorable mention has already been made of the preceding three volumes of this translation. This concluding volume only deepens the impression made by the former numbers.

The editorial notes have been a very important and acceptable addition to the text throughout the work, and this is strikingly true of volume IV. They make the book representative of the best opinion up to date, and save it from the charge that the original is already a little behind the times. This is one of the few books of which it may be truthfully said that no specialist interested in the subject, and no general practitioner can be without, and yet be fully posted in his line of work. One feature still deserves unmeasured condemnation: another edition with the present cuts would be unpardonable.

HANDBOOK OF MATERIA MEDICA, PHARMACY, AND THERAPEUTICS, including the Physiological Action of Drugs, the special Therapeutics of Disease, official and extemporaneous Pharmacy, and Minute Directions for Prescription-writing. By SAMUEL O. L. POTTER, M. A., M. D., Professor of the Theory and Practice of Medicine in the Cooper Medical College of San Francisco: Author of *Quiz-Compend of Anatomy and Materia Medica*; *An Index of Comparative Therapeutics*, and *A Study of Speech and its Defects*. Late A. A. Surgeon, U. S. Army. Pp. xx, 828. PHILADELPHIA: P. BLAKISTON, SON & CO. CHICAGO: W. T. KEENER.

As announced in the preface, the intention has been to produce a book which would embrace, in a single volume, the essentials of materia medica and therapeutics, such instruction in pharmacy as every physician should possess, and minute directions for prescription-writing.

Unfortunately the general style of the author's *Quiz-Compend of Materia Medica* is retained in

this hand-book, which can be regarded only as a voluminous compendium of pharmacological, therapeutic and pharmaceutical data, in which, for the sake of brevity, all experimental processes and methods by which stated results have been ascertained, are omitted. For instance, the physiological action of digitalis on the heart is epitomized, merely, within a dozen lines, a treatment of the subject which is not commensurate with its importance.

As a sole reliance, the work is inadequate to the needs of students, because, like all compendia, it appeals exclusively to the memory and furnishes no scope for assistance by exercise of the reasoning faculties.

Part II, treating briefly of pharmacy and prescription-writing, is a commendable addition.

Part III, pertaining to special therapeutics, is composed of an alphabetical list of diseases with a summary of the therapeutic indications in each. It is the customary index of diseases, extended and enlarged.

A section is appended embracing tables of Latin words and phrases used in prescription-writing, hypodermic formulæ, formulæ of patent medicines, the treatment of poisons, differential diagnosis notes on temperatures in disease, obstetrical memoranda, the treatment of asphyxia, as in drowning, clinical examination of urine, extracts from the code of ethics, etc., some of which miscellaneous information is *hors de propos*, but all of which is of a most useful and instructive nature.

As the work is systematically arranged, its statements reliable, and the index perfect, it will be serviceable for ready reference and review.

EVACUANT MEDICATION: Cathartics and Emetics. By HENRY M. FIELD, M.D. Pp. vi. and 288. PHILADELPHIA: P. BLAKISTON, SON & CO. CHICAGO: W. T. KEENER. 1887.

There are few subjects in the domain of internal medicine, usually considered as of minor interest, which are really of more practical importance than this. In our medical colleges it rarely, if ever, receives systematic attention, and the standard text-books do not give it comprehensive treatment. The recent medical graduate, if a conscientious prescriber, is hardly ever so much at a loss as in the choice of a cathartic for individual cases, and in no other aspect of his work

does the older practitioner have so great an advantage over him. The author's remark, that "popular and professional abuse of cathartics was never so great as now," is amply supported by the larger number and expensiveness of the advertisements of cathartic medicines. The author treats his subject in a systematic, thorough and very satisfactory manner, as the table of contents will demonstrate. Its divisions are: Introductory. EVACUANTS—No 1. CATHARTICS; Cholagogues, Mineral Cathartics, Differential Therapeutics, Cathartic Medication, General Principles. EVACUANTS—No. 2. EMETICS; Topical or Irritant Emetics, Emetic Medication, Arrest of Vomiting, and an Index which is complete and satisfactory.

A TEXT-BOOK OF HUMAN PHYSIOLOGY, INCLUDING HISTOLOGY AND MICROSCOPICAL ANATOMY, WITH SPECIAL REFERENCE TO THE REQUIREMENTS OF PRACTICAL MEDICINE. By DR. L. LANDOIS, *Second American edition, translated from the fifth German edition, with additions.* By WILLIAM STERLING, M. D., Sc. D. Pp. xxxix 922; 583 illustrations. Philadelphia: P. BLAKISTON, SON & Co. 1886. Chicago: W. T. KEENER.

This second translation of Professor Landois' "Lehrbuch der Physiologie des Menschen" is in many respects, an improvement upon the first. The same general arrangement has been preserved, but some of the chapters have been largely re-written, and for the most part improved. The translator has done his work well, having reached a happy medium, neither very closely imitating the text nor departing too widely from it. The work is not easy reading, the style being somewhat disjointed—a defect that is more apparent in the original than in the translation, and one that was unavoidable in crowding this amount of matter into a single volume of this size. A large number of authors have been consulted, and their names appear in the text. In fact, for almost every statement the authority is given, but not the reference. This is an unfortunate omission, as they could easily have been added in foot notes without materially increasing the size of the book. The work is too voluminous for the student of medicine, and for occasional reference in the library of the physician such foot notes would have been invaluable.

The arrangement of the work is admirable, being divided into sections, sub-sections and paragraphs, each one designated by double-face types; thus making it possible to pick out at a glance

the precise subject on which information is sought, and rendering a reference to the index scarcely necessary.

For the use of the practicing physician it is one of the best books in the English language; for those just beginning their studies a smaller work would be better suited.

THE PRINCIPLES AND PRACTICE OF OPERATIVE SURGERY. By STEPHEN SMITH, A. M., M. D., *Professor of Clinical Surgery in the University of the City of New York, Surgeon to Bellevue Hospital, etc., etc.* New and thoroughly revised edition. Pp. xxxii and 877. Philadelphia: LEA BROTHERS & Co. Chicago: A. C. McCLURG & Co. 1887.

This work was first published in 1879, and has had eight distinct issues since; but this, being the first revised, is really the second edition. The revision has been thorough and complete, and it brings the book fully up with the latest approved measures in operative surgery. In preparing the text upon antiseptics and their employment, the author says that he has drawn freely upon the works of Cheyne and Von Hacker. This condensation has been admirably made, and the author's directions can be understood by any surgeon. It is gratifying to have a text-book in English on operative surgery which, without reserve, condemns as inexcusable all operative surgery which is not strictly aseptic. This edition is decidedly superior to its ambitious and excellent rival which has recently appeared, and which was reviewed in this journal.

DISEASES OF WOMEN. A hand-book for Physicians and Students. By DR. F. WINCKEL, of Munich. Authorized translation by J. H. WILLIAMSON, M. D., under the supervision and with an introduction by THEOPHILUS PARVIN, M. D. PHILADELPHIA: P. BLAKISTON, SON & Co. CHICAGO: W. T. KEENER. 1887.

This translation of Professor Winckel's hand-book is a welcome addition to the treatises upon the subject in the English language. The standing of the author of the original is so well assured among his colleagues in Germany that he needs no eulogy here. The teaching of the book is eminently conservative, and in this reflects the growing tendency among the Germans. The treatment of the subjects discussed is clear, practical and thorough. The translation is excellent and the letter press very satisfactory. The book deserves a large sale among general practitioners and students.

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PENETRATING GUNSHOT WOUND OF THE ABDOMEN, WITH A REPORT OF FOUR CASES.

BY EDMUND ANDREWS, M. D., LL.D., PROFESSOR OF CLINICAL SURGERY, CHICAGO MEDICAL COLLEGE.

CASE I.—A lady sitting in her house was struck by a stray bullet coming in at the window, on the Fourth of July last. The bullet entered about two inches downward and outward from the anterior superior spinous process of the ilium. A thoroughly skillful family physician examined the wound and found appearances pointing to the probability that the bullet had traversed obliquely downward in a direction where it could not injure the viscera, so that strong hopes were entertained that nothing dangerous would result. On the following morning, however, he discovered decided evidences of peritonitis, and sent for me in consultation. We carefully examined the patient and agreed on the necessity of an exploratory operation, which was commenced about sixteen hours after the injury. The patient, aside from the peritonitis, seemed in a fairly good condition for enduring operative procedures.

Such antiseptic measures and precautions as could be taken without too much loss of time, were rapidly resorted to. The operating room was cleared out and scrubbed with antiseptic solutions.

The patient's abdomen was washed thoroughly with a similar solution, likewise the hands, hair and faces of the operator and assistants, and clean laundry linen drawn on over the other clothing, wet with antiseptics, etc. A small incision was made in the linea alba below the umbilicus, which showed that the abdomen was full of bloody serum. The opening was moderately enlarged, and the serum removed with great care, when the intestines on the side towards the wound were seen to be intensely red with inflammation, and partially agglutinated with fresh adhesions.

No particles of any material could be found among the intestines, or floating in the serum giving any appearance of having escaped from the alimentary canal. The small intestine was carefully examined by passing it through the finger, and at a point a little above Poupart's ligament, on the left side, an opening was found in it, and also an orifice through the mesentery of an adjacent coil. The wound was closed with Lembert's suture, using antiseptic silk for the stitches.

At this point the patient's pulse began

to fail. Search, however, was continued until it was reasonably certain that no other opening in the intestine existed. We then began a complete "toilet of the peritoneum" by clearing out all the remaining bloody serum. No clots of any considerable size were found, and the actual quantity of blood effused was not large. Before this process could be finished to my entire satisfaction, the pulse of the patient sunk still lower and became almost imperceptible, so that she seemed likely to die on the table from shock. The cleansing of the abdominal cavity was therefore finished tolerably well, but not with the thoroughness that would otherwise have been done. The wound was dressed antiseptically, in the usual manner, and the patient placed in bed and treated with warmth and stimulants. After some hours she reacted. The next morning all the symptoms were more favorable. The temperature was lower than before the operation and the strength seemed comparatively good. The following day, which was the third from the injury, she sunk into a state of asthenia and died. A proper autopsy was not obtained, but a slight examination of the abdominal cavity showed some degree of renewal of the serous effusion without any material hæmorrhage.

CASE II. was another fourth of July accident.

A robust man of middle age, being engaged in a dispute with another person, the latter drew a pistol and shot him in the left side of the abdomen, a little above the superior spinous process of the ilium, penetrating the cavity of the abdomen.

Great shock followed, and, on evacuating the urine, it was found to be bloody, indicating that the left kidney had been struck by the bullet. Sixteen hours afterwards I was called in consultation. The patient was moribund, the pulse almost imperceptible, and at moments when it could be counted it was about 150. Deeming that he was already past any possibility of help, no laparotomy was attempted.

CASE III.—A young man going past a saloon, whilst a row was in progress, but on the opposite side of the street, re-

ceived a shot from a small pistol fired by some one in front of the saloon. Being called in consultation, on the same day, I found the pistol-wound directly over the stomach in the linea alba, above the umbilicus. As this was many years ago, laparotomy was not considered among the recognized remedies for the condition. The patient was kept in bed, given small quantities of water at a time for drink and deprived for some days of food. He was also kept pretty thoroughly under the influence of opiates. No bad symptoms of any kind occurred. About the tenth day he passed the bullet per anum, and recovered as if his injury had been of the most trivial sort.

CASE IV.—A robust young man was in a saloon where a policeman attempted an arrest, and in doing so used his pistol, having a calibre of 42. The bullet struck the man in his back, a little above the right kidney, and passed out at the linea alba, halfway between the umbilicus and the extremity of the xiphoid cartilage.

The young man's stomach was empty of food, but he had taken a pint or two of beer. He vomited blood and beer. Considering the direction of the bullet and the vomiting of the blood, I deemed it reasonably certain that the stomach was perforated and recommended laparotomy to him. This he promptly refused to submit to, so I confined him to bed, deprived him of food, and gave him opiates in order that he might die a correct and scientific death. However, nothing particular occurred. No fever, inflammation or peritonitis followed, nor anything else of any consequence whatever. The patient recovered with more ease and comfort than he would have done from the amputation of a finger.

I am not prepared to make an elaborate discussion upon these cases, for evidently what we need at present is an accumulation of facts upon which to base future reasonings. The important question which presses for answer in such cases is this: Shall there be a laparotomy? My opinion is that where an intestine is wounded a laparotomy is usually demanded, if the patient is not

already in too prostrate a condition to give hope of success.

But the more difficult class of cases are those apparently in which the stomach is wounded with small bullets.

The author of the "Surgical History of the War of the Rebellion" expresses the opinion that wounds of the stomach not laparotomized will be found more dangerous than those of the intestines.

My own observation would tend in a contrary direction. It is my opinion that the thick walls of the stomach, lined with a tough mucous membrane loosely attached to it, admits of being perforated in many instances by a small bullet without leakage of the contents. The muscular fibers of the thick walls of the stomach seem to spread and close together again after the bullet, as they would after an aspirator needle. At the same time, where the shot is oblique the bullet may traverse a little distance between the muscular walls and the mucous lining, so that the openings of the two are not opposite each other, making a valvular arrangement which prevents leakage. On the contrary, the thin walls of the intestine do not admit of such a result, and leakage is inevitable if they are perforated.

Unfortunately no man can distinguish

positively between the conditions beforehand; and though the stomach wounds often recover without operation, it is best to make at least an exploratory opening into the abdomen in most cases of penetrating wounds, unless the general condition is such as renders it morally certain that the patient cannot survive the shock.

In military practice, and before abdominal section was used for gunshot wounds, the mortality from this injury was about 76 per centum, exclusive of those who died at the line of battle, without appearing at the field depot. The small pistol shots of civil practice are probably less fatal than the ounce-weight military projectiles, so that apparently the average patient has more than one chance in four of recovery without operation; yet if we could select out the intestinal gunshot wounds and reckon their results separately, we should probably not find one in twenty recovering, and these are the ones in which laparotomy is the most urgent. However, no one can determine beforehand precisely what the bullet has cut, hence, as before stated, the comparatively safe exploratory incision to determine the exact injury should be employed far more frequently than it now is.

GUNSHOT WOUND OF THE ABDOMEN, WITH PERFORATION OF THE INTESTINES.

BY FRANK T. ANDREWS, A. M., M. D.

THE following case is of interest in showing how the varying conditions in actual practice frequently interfere with the performance of laparotomy for gunshot wounds of the abdomen.

A gentleman, fifty-seven years of age, of good physique and temperate habits, received a bullet-wound of the abdomen from a thirty-two caliber revolver.

After receiving the injury, the patient walked at least a quarter of a mile, and rode several miles in a buggy over country roads. He was then brought to this city, a distance of sixty miles, by rail.

When I first saw the patient, at least eight hours after the accident, he was suffering from overwhelming shock and from internal hæmorrhage. The extremities were cold. The temperature in the axilla 96.4° F. The pulse was nearly imperceptible at the wrist, and at intervals, when it could be counted, it was one hundred and fifty per minute.

In marked contrast to the radial pulsations, the contractions of the heart were strong. The apex beat was visible to the eye and perceptible to the touch.

Auscultation revealed a diastolic mur-

mur over the aortic valves, indicating insufficiency and consequent regurgitation.

The heart, equal to its task before the accident, was unable properly to perform its functions under the new conditions.

The question, of course, arose whether there was any reasonable prospect that the patient could survive a laparotomy for cleansing the peritoneal cavity and closing the wounds of the intestines. It was evident to me that, in his moribund condition, the operation would only hasten the fatal termination. It was therefore not performed.

The patient died in about thirty hours without reacting from the shock.

The post-mortem examination, as made

by the county physician, showed that the bullet, entering the body an inch and a half to the left of the median line, at the lower border of the ninth rib, passed almost directly downward through the anterior edge of the diaphragm, perforated the small intestine in two places, passed through the ala of the ilium and lodged behind the great trochanter.

There was considerable clotted blood, but no fecal matter in the peritoneal cavity. The peritoneum was not inflamed.

Possibly an operation, immediately after the injury and before the patient was weakened by traveling and by the loss of blood, would have been successful.

GONORRHŒAL PERITONITIS.

BY J. E. GREENE, M. D., MISHAWAKA, INDIANA.

[Read before the Mississippi Valley Medical Association in annual session at Crab Apple Springs, Ky., July 12-15, 1897.]

I DOUBT if I could present to your consideration a subject of more importance or less interest than gonorrhœal peritonitis, and in doing so I do not expect to present anything new; but if I can cast a light upon the subject that will cause you to see the gravity and dangers of a simple gonorrhœa I will have accomplished all I hope for.

Gonorrhœa *per se* is one of our common complaints, and being common is treated as a simple local affection, with too little thought of the possible dangerous *sequelæ*. Even the laity pretend to skill in its treatment; and we as physicians too often say, "but a simple, uncomplicated case of gonorrhœa."

I do not understand how any disease can complicate gonorrhœa, but I can very readily understand how gonorrhœa may complicate many other affections. And while I speak of gonorrhœa simplex (?), in this article it is simply as a preface, and not that I expect to teach you anything in regard to its etiology or treatment.

A secretion procured in non-specific urethritis or vaginitis may be acid in its

reaction on litmus. A specific, or gonorrhœal inflammation of any part always causes an acid secretion; the gonococci cannot live in an alkaline menstruum, they travel along a mucous tract rapidly and from choice. I have frequently experimented with gonorrhœal pus, by vaccination in the true skin; and saving to sometimes set up a slight circumscribed dermatitis I have seen no proof that the disease is inoculable on parts of the body other than the mucous tract of the genital organs. You have doubtless seen cases of gonorrhœal ophthalmia, with ulcerated or perforated cornea. The ulcer on the cornea is self-limited, but that limit is not reached until perforation has taken place. I do not mean that perforation is the end wrought by the micrococci, but that the destruction of tissue is so rapid that perforation is merely a mile stone on the road of its action.

Infection of the genital tract is a dangerous affection, and while in the majority of cases "a clap is no worse than a bad cold," no individual ever had the clap that did not have the shadow of a great danger hanging over him.

Gonorrhœal peritonitis presents essentially the same symptoms as a peritonitis from other causes. The symptoms may be more severe, and the progress more rapid, as the cause is more active than many other causes of peritonitis. It is not necessary to give you the symptoms or pathology of peritonitis. You know them too well to mistake them, and see causes too often to mistake them.

I have seen many cases of gonorrhœal epididymitis, and I affirm that not one ever entirely recovered. In 1875 I was called to treat a youth for gonorrhœal epididymitis. He had a mild peritonitis as well. He made an apparent rapid and perfect recovery. In 1877 he called upon me for advice, complaining of soreness of the bowels. Examination showed a sub-acute, or rather a chronic inflammation of the peritoneum. He told me that since his attack of epididymitis in 1875 he always had a return of abdominal soreness in cold, damp weather, or upon the least excess of any kind.

Another patient contracted gonorrhœa in the summer of 1884. He treated himself, and presumed he was well. Six months after the cessation of the discharge, and three months after any exposure he consulted me. He complained as the previous patient had, of a pain in the abdomen. Examination revealed a tender, slightly swollen testicle. In twelve hours thereafter the testicle was terribly sore and swollen, abdomen tender and somewhat tympanitic, tongue red and dry, temperature 103°. He remained in that condition for 48 hours, when there commenced a discharge of pus from the urethra which gradually increased in quantity until it became copious. His epididymitis and peritonitis gradually subsided; he also made an apparent recovery—only apparent, however, for he frequently consults me, always complaining that bad weather causes pain and soreness in the abdomen. I had no means of making a scientific test for gonococci in the pus he discharged per urethram, but I applied some of it to the eye of a dog, and it set up an acute ophthalmia which went on to perforation.

This last case would tend to prove the theory advanced by Noëggareth—which I firmly believe—that gonorrhœa is never entirely cured.

The two cases just cited are in my opinion chronic gonorrhœal peritonitis, and are but types of many others that have fallen under my observation. I have never known a death in the male from peritonitis caused by gonorrhœal infection, although several of our authors cite cases of that kind followed by death.

Whether the germ passes through the vas deferens or semina vesicles to the peritoneum does not matter, either being the high road. In the female the gonococci proceed up through the uterus, through the fallopian tubes to the peritoneum—not in all cases, to be sure, but in many. And while the main symptoms are those pertaining to salpingitis, particularly pyo-salpinx, there is always a peritonitis, circumscribed or general.

In 1879 I was called to treat a lady for puritus vulvæ and leucorrhœa. Examination convinced me that I had a case of gonorrhœa to deal with, and the diagnosis was confirmed by the husband confessing to me that he had had gonorrhœa, and had during the continuance of the discharge, frequent connections with his wife. He also informed me that he had been told by his physician that as his wife was pregnant there was no danger of communicating the disease to her.

Within a few days she miscarried with a six months foetus. She soon showed symptoms of salpingitis, which was soon followed by a severe attack of peritonitis. Since that time she has been an invalid. At times she is apparently well, often she is confined to her bed with peritoneal inflammation. Refusing any but medical treatment that is far from satisfactory, her condition is one of constant anxiety and danger. Unforeseen and unexpected causes too frequently light the fire of dormant inflammation. It is a sad case, and she is a sufferer indeed.

In 1877 I treated a young married woman for gonorrhœal inflammation of the fallopian tubes and peritoneum.

About a year before marriage her husband had had gonorrhœa, but supposed himself well. He had no urethritis or discharge from the urethra, and she had never had leucorrhœa or vaginitis. This was a case I believe of latent gonorrhœa communicated from the husband. She made an apparent recovery, as they nearly all do, but only yesterday — June 31 — I was summoned to Cincinnati to make a laparotomy upon her, not to save her life, but to relieve terrible and long-continued suffering. I have not yet operated but expect to within the next month.

I do not believe that the gonococci propagate upon the peritoneum, that is a serous membrane, and I do not think it furnishes food enough suitable for the micrococci, but they do propagate within the fallopian tubes, pus, or the abnormal secretion of the tubes which escapes through the fimbria, and thus sets up and keeps up the peritoneal inflammation.

May 1, 1887, I was consulted by a girl aged 19, who complained of extreme soreness in both ovarian regions. She strongly denied having had intercourse, as well as having a vaginal discharge. I suspected gonorrhœa, or that she had had a miscarriage, but she would acknowledge neither. The ovaritis continued to grow worse, and by May 15 she was confined to her bed with peritonitis. She even then maintained her former assertion as to her chastity. By June 4 she was able to sit up, and continued to improve until June 18, when she walked a long distance, and was that evening again compelled to take to her bed. She called no physician until June 23, when I visited her. I found her pulse 160, temperature 105, skin cool and moist, though not cold and clammy, lips blue, *eyes bright*; tongue coated with a brown, moist, thick fur; abdomen tympanitic, and tender, slight cough and dyspnœa. She then acknowledged her exposure, and submitted to a vaginal examination. There was a copious greenish yellow pus discharging from the vagina, the os was inflamed and granular, while from the uterine cavity there was a bloody pus slowly oozing.

I was satisfied that the fallopian tubes were filled with pus, also that there was pus in the peritoneal cavity. She was dying from septicæmia. I urged laparotomy for the purpose of removing one cause of blood poisoning, and hoped to be able thereby to save her life. She, as well as the family, objected, and after prescribing I left her. On the morning of June 24 I found her with pulse 120, temperature 101, skin cool and more moist than yesterday, lips slightly redder, tongue cleaner, abdomen tympanitic almost to bursting, countenance very anxious, eyes very bright, and the abdominal pains almost beyond endurance. I prognosticated death within twelve hours, unless she obtained relief. She and her family were anxious for abdominal section, and as a *dernier resort* I consented, though promising nothing. At 2 P. M., assisted by Drs. Thorp and Van Pelt and medical student, Butterworth, I proceeded to operate. After passing through the linea alba, I came upon a thickened and inflamed peritoneum, tense and protruding through the wound already made. I made a puncture through it, when out, spurted with considerable force, pus and serum. I quickly enlarged the incision to about two inches, through which poured pus, serum and broken-down tissue, to the amount, by estimate, of at least three quarts. The odor was horrible. After the evacuation I examined the cavity. I found the fallopian tubes filled with pus and greatly distended; upon the ovaries I found several abscesses from the size of a pea to to the size of a filbert, all filled with pus. The peritoneum was thickened and showed many granular spots. The intestines were distended somewhat with gas, and they, too, in places showed granular spots. Adhesions had formed in many places, but they were not firm. After making as thorough a toilet as possible I closed the wound in the usual manner, leaving in the lower angle a drainage tube. She reacted well, coming soon from under the influence of the anæsthetic. She expressed herself as greatly relieved by the removal of the tension caused by the tympanitis, but I could see she was

growing weaker. The skin remained cold although the extremities were warmer, the sweating increased, the lips became a darker blue, the cough and dyspnoea increased. I left her at 8 o'clock P. M. At half-past eleven she died, her mind clear up to the last moment of her life.

I do not think the death was hastened one second by the operation, though I do think that, had I seen her and operated on the 22d, her life would probably have been saved. She died of septicæmia, that might have been controlled if I had earlier removed the cause. The treatment medicinally of gonorrhœal peritonitis differs in no manner from the treatment of peritonitis from other causes, saving perhaps that antiphlogistics are more urgently called for. To my mind surgery offers the most rational mode of treatment, and at the same time promises the most favorable results.

I would not in all cases make a laparotomy, yet whenever the inflammation was active, tympanitis great, and tem-

perature high, I would not hesitate to make an incision through the abdominal walls, clean out the cavity, and insert a drainage tube. In the female I would particularly urge surgical interference, either in acute or chronic cases. If the uterine appendages are affected I would remove them. By so doing the danger to life would not be so materially increased from the operation, and the prospect of complete recovery is too flattering to pass by. Not only would I open the abdomen for gonorrhœal peritonitis, but as well in all cases of severe peritoneal inflammation where I am reasonably sure that there is a serous effusion of dangerous amount within the cavity. I have not yet to regret making the operation, but I do regret not doing so in many cases; I am confident that lives have been lost that might have been saved by timely surgical measures.

In closing, I would particularly urge my professional brethren to consider the gravity of gonorrhœa, and to closely investigate the promises of cure of peritonitis by laparotomy.

TRANSVERSE FRACTURE OF THE PATELLA.

BY J. Y. BROWN, M. D., HENDERSON, KY.

[Read before the Mississippi Valley Medical Society, in Annual Session at Crab Orchard Springs, July 12-15, 1887.]

I KNOW of no subject in the whole range of surgery which has been more thoroughly studied, both in regard to its pathology and treatment, than that of transverse fracture of the patella; and until very recently no satisfactory explanation has ever been offered to throw light upon the cause of non-osseous union which practically exists in nearly all cases of transverse fracture of this bone. From the birth of surgery to the present day, theory after theory has been advanced in explanation of this constantly existing result; and although each has seemingly been well sustained by anatomical, physiological and pathological facts, all alike have been disproven,

and until within the last two years none could assign a cause and prove it. As has been the pathology, even worse has been the treatment; and but for the introduction of modern antiseptic surgery, it would have remained in that deplorable state, alike unsatisfactory to surgeon and patient, unscientific from the standpoint of modern investigations, and in some respects barbarous. As the views concerning both the pathology and treatment of this fracture have undergone so marked a change in the last two years, a separate consideration of the two subjects will, I trust, prove interesting to the society. I shall, therefore, first briefly consider its pathology from a modern

standpoint, and afterwards the treatment.

An able article published in the March number, for 1887, of *The Annals of Surgery*, by Macewen of Glasgow, on "The Pathology of Transverse Fracture of the Patella," brings forward a most scientific and satisfactory explanation of the cause of non-osseous union in these cases; and in this he not only proves the correctness of his own views, but thoroughly disproves all pre-existing theories in regard to this matter. He opens his paper with an anatomical consideration of the knee-joint, laying especial stress on the point of insertion of the quadriceps extensor tendon and the anatomical distribution of the præpatella aponeurosis. In a series of anatomical dissections he illustrates the fact that the "tendon of quadriceps is for the most part inserted into the groove on the upper part of the patella, the strong aponeurosis being attached to its sides, while the ligamentum patellæ arises chiefly from its lower border." He shows that over the center of the anterior surface of the patellæ, continuous with the tendon of the quadriceps above and the ligamentum patellæ below, there exists a distinct band of aponeurotic tissue, completely covering the surface of the bone. Ten normal patellæ submitted to examination by Macewen showed the constancy of this aponeurosis; and I myself have made an examination of five cases in regard to this fact, and in each have found it as above described. Any one who will take the trouble to make this dissection can readily demonstrate to his thorough satisfaction both the point of insertion of the quadriceps tendon and the anatomical distribution of the præpatella structure, which play so important a part in the pathology of the fracture.

Now, it is well known that transverse fracture of the patella is in the majority of cases caused by violent muscular action, while in the attempt of maintaining an equilibrium during the act of falling. "The powerful force of the quadriceps causes the patella to be jerked upwards, relatively to the former, beyond the position where it usually rests, supported laterally by the femora-patella

surface. The patella being held below by the power of the ligamentum patella, rests on the apex of its posterior vertical ridge, which thus becomes the point upon which is developed the greatest energy of the two opposing forces,—that of the contraction of the quadriceps on the one side, and the weight of the body on the other." When fracture occurs in the quadriceps tendon the upper fragment becomes tilted, so that the fracture surface presents anteriorly. Thus the shreds become entangled in the spicula of the fractured bone, and the soft parts are drawn into the interspace, by the flexing of the joint and the atmospheric pressure; hence, it is plain that with these structures between the fragments, together with the floor of the patella bursæ, approximation of the fragments is rendered impracticable. Consequently osseous union with this condition is impossible; fibrous union will be seriously modified. Now, the views of Doctor Macewen herein stated, are *not conclusions drawn from theoretical reasoning, but au facto* the fibrous aponeurosis, being more elastic than the bone, bridges over the interspace between the two fragments, and should the force be sufficiently great, this aponeurosis ruptures and hangs in shreds of variable lengths which are forced into the hiatus between the fractured bone. When fracture occurs the præpatella structures,—viz., the fibrous aponeurotic tissue and floor of the patellæ bursæ become stretched and ruptured; and by reason of the flexed position of the joint, influence of atmospheric pressure, and the position of the upper fragment, these structures are forced into the hiatus and an irreducible separation is brought about. Prior to Macewen's investigation of this subject, there were three causes assigned, in explanation of non-osseous union in this fracture, all of which he considers and scientifically refutes. Although it may appear superfluous to consider here these theories—for truly the pathology as it now stands can but be clear and conclusive to the mind of every surgeon—still, it is a matter of some interest and may as well be considered.

In all works on surgery, non-osseous

union has been attributed, first of all, to insufficient blood-supply to the patella, thereby causing a low vitality of the bone and rendering the out-pouring of ossific deposits, which enter prematurely into the repair of every fracture, poor and scanty. Now, this assumption is absolutely without foundation, for it has been shown by injected specimens that the blood-supply to this bone is not only abundant, but thoroughly distributed. Any one who has ever seen a joint opened in viewing this fracture, can bear evidence of this fact from the abundant parenchymatous hæmorrhage which ensues from the cancellated tissue of the fracture bone. Again in longitudinal fracture of this bone osseous union is the rule; and in rare cases of transverse fracture a like result follows; hence, were the above true, such a result would be impossible.

Not only is the parenchymatous hæmorrhage great in these cases, but, hæmorrhage is at times seen. Neither my colleagues nor myself have been able to find mention of this fact in literature, but a case in point gives abundant proof. In a resection of the knee-joint made by Doctors Jenkins and Dixon after Volkmann's method, and in which I was kindly invited to assist, the arterial hæmorrhage after the patella had been sawn through was so great that the Paquelin cautery had to be resorted to. How often this condition is present I am unable to say. Be this as it may, the fact still remains and is thoroughly substantiated, that the patella is abundantly supplied with blood, and the theory of insufficient blood-supply can be excluded from the hitherto presumably existing causes of non-osseous union.

Second, contraction of the quadriceps extensor tendon, which separates the fragment by pulling on the proximal one, may in some respects prevent union, if no attempt at reduction be made; but reduction is easy when properly practiced, consequently this alike with the first can be excluded.

Third, and lastly, the effusion of blood and serum into the joint, causing distension, and thereby separation, has been brought forward as a cause. The rapid absorption of this material renders its

presence of little importance in the prevention of osseous union. Blood is a constant factor in every fracture, and forms, as is well known, one of the media of repair. Hence, by exclusion, we arrive at the true pathology of this fracture, and it only remains to adopt a proper method of treatment, based on these anatomical and pathological conclusions.

It is evident, if we accept Macewen's views of the pathology of this fracture, that none of the previous methods of treatment offer more than the prospect of an unsatisfactory result. Ligamentous union is all we can expect, and frequently we fail even in obtaining this, even granting that strong ligamentous union is gotten, partial or complete ankylosis is concomitant, and efforts at passive motion are accompanied by a stretching of the ligamentous band of union, thereby producing wide separation of the fragments and a necessary weakening and impaired function of the joint. On the contrary, should this more favorable union not occur, the condition is even worse, the fragments are then united by a thickening of the aponeurotic structures in front of the bone, and this condition—to quote Erichsen—always leaves a weakened limb and an unprotected joint. In consequence of the separation of the fragments and the folding of the bursæ, the fingers can be thrust in between the articular surfaces of the knee. It is true, ankylosis by manipulation and passive motion can be overcome, but it is accomplished by a stretching of the bond of union and a consequent separation of the fragments, so that even though mobility be completely restored, the joint is left in so weak a condition that it is relatively of little more value than one in an ankylosed state. This is no melancholy picture of the results to be expected from the ordinary methods of treatment. On this point all authorities agree, and doubtless there are many of you here present who can add a like experience to these. It would be useless to consider here all the manifold apparatus and devices which have been and are still being used in the treatment of these fractures

They are all adjusted with the same object; and, while they differ slightly in construction, the principle is the same; therefore what is said of one will apply alike to all.

In the repair of every fracture, osseous union is dependent primarily upon two conditions: First, it is necessary that the fragments be adjusted; and second, that they be maintained in position by some properly applied splint or bandage or by other means which I shall mention further on. Now, by any of the ordinary methods of treatment, neither of these conditions can be fulfilled, consequently the treatment promises little or nothing. After days of suffering and months of confinement the patient is left to lament a crippled condition and the pleasant anticipation of a big doctor's bill. The impossibility of getting osseous union by these methods is proven by results, as is the cause, by the pathology. It may be well to state here that I shall advocate in this paper the operation of opening the joint and wiring the fragments, contending that the indications and contra-indications are the same as those which govern us in the performance of any surgical operation, and that by this means only can we expect to get ideal results. I am well aware that on this point there is considerable diversity of opinion, but, after a careful examination of the results and mortality following, both lines of treatment, I am thoroughly satisfied that the operation of suturing the patella fragments, in the hands of a good man, is equally as safe, if not safer, than some of the former methods of treatment, and statistics show that results are incomparably better. As I before stated, all methods of treatment proposed for this fracture have for their object the accomplishment of two conditions, viz: Approximation of the fragments and the retention of them in position when approximated. Now, a glance at the pathology of this fracture will show that to accomplish this the joint must be opened, for unless the præpatella structures are removed from between the fragments approximation is impossible and osseous union is never gotten. All of you are more or less familiar

with the usually recommended form of treatment laid down in most works on surgery. A consideration of them now would therefore be superfluous—all, with the exception of one, have this in their favor, namely, they are safe; and while they can accomplish comparatively little in the shape of good, they in no way endanger the life of the patient.

Before summing up the dangers and results to be expected from the two courses of treatment, I cannot refrain from making a few criticisms on the use of the malgaigne's hooks, a relic of barbarism which I trusted had long since been relegated to the tombs of antiquarian remains; but, to my surprise I find in the last edition of that scientific and ably edited journal, the *Annals of Surgery*, an article by Dr. Buchmore, Professor of Surgery in the Long Island College Hospital, in which he not only recommends them, but urges their use. Wherein there appears any advantages over other means of treatment, I fail to see; and certainly the tortures and dangers to which they subject a patient, should exclude them from the armamentarium of all scientific surgeons. Osseous union has never been gotten by this means of treatment, nor is it possible that such could result. Erysipelas necrosis and separation have been known to follow their use, and this, together with the pain in applying them and the absolute nothing in point of result which their application promises, is certainly sufficient ground to warrant a suit for malpractice, in case any complication should come up resulting from such treatment.

From this let us proceed to a general consideration of the two plans of treatment, viz.: That which consists of splints, hooks, bandages and the like, is that which consists in opening the joint and wiring the broken fragments. First, by adopting any of the former methods of treatment, what is the surgeon to expect? This question is easily answered; non osseous union in every case; a weak joint; and in nearly all cases, partial or complete ankylosis. On the contrary, should the fragments be wired, a prognosis of rapid recovery; osseous union;

and in almost every case, a complete restoration of the functions of the joint. I know there are many who contend that the operation is unsafe, but this statement cannot be substantiated. Has it not been proven that all inflammation is due to infection, and that, wherever pus is found, micro-organisms are present? Can we not say that by a thorough carrying out of the principles of antiseptic surgery this can be prevented, and by excluding infection, the operation is, comparatively speaking, dangerless. With the safeguard which antiseptics hold out against infection and the modern improvements in surgical technique, on surgeon can hesitate a moment in performing this operation. Let due care be taken in the thorough carrying out of the antiseptic technique involved in the operation, and a favorable prognosis can be given in every case and the life of the

patient is in no ways endangered. Should we hesitate in the performance of a surgical operation on the grounds of its being dangerous, and operate only on those cases devoid of danger, surgical science would dwindle down to the administration of drugs, for truly the simple exploration of a knee-joint is far more dangerous than wiring the patella when scientifically performed. No, the argument of danger can only be brought forward against the operation by those who are unfamiliar with and who disregard the teachings of antiseptic surgery. The operation in itself is an exceedingly simple one, success depending entirely on the antiseptic technique. It has been done any number of times, and I have been unable to find report of any complication occurring, when due respect had been paid to the drainage and after-dressing.

FOREIGN CORRESPONDENCE.

To the Editor of the Chicago Medical Journal and Examiner:

THE Fifty-fifth Annual Meeting of the British Medical Association was held in Dublin during the first week of August of this year. The membership of the Association now numbers 12,000, having increased four fold in twenty years. The president for this year is Dr. John T. Banks. His inaugural address was devoted chiefly to a discussion of matters of local interest. He declined to discuss the question of the expediency of women entering the medical profession. He said that the Royal University had no discretion in the matter, and that the College of Physicians and Surgeons had voluntarily thrown open its doors to, and afforded them every opportunity. Last year the degree of B. A. was conferred upon nine women, four of them taking honors.

The work of the Association is done in sections.

In the section on

PUBLIC MEDICINE,

Sir Thomas Crawford, president of the

section, said that diplomas in sanitary science, public health, etc., must sooner or later be recognized as one of the necessary qualifications of medical men. He thought it desirable that there should be uniformity of title as to the registration and qualification of medical men under this head. It was by no means unusual in these latter days to hear the champions of sanitary science boast, and justly boast, of the perceptible prolongation of life which has been secured through the beneficial effects of improved sanitary arrangements. But there was, he said, evidence of perceptible deterioration or degradation of life in the lower order of people. He had before him an analysis of the results of 32,324 examinations of men made by army surgeons from 1860 to 1864 inclusive.

A careful examination of these tables led to the inference that the lower class, from whom the recruits for the army are chiefly taken, are of an inferior physique now to what they were twenty-five years ago. The recruits drawn from town-bred populations gave by far the larger

proportion of rejections, whilst the causes of rejections usually indicate a decidedly inferior physique.

The rejections from defective vision and diseases of the eyes were nearly 42 per 1,000, exclusive of all those whose defects of vision were so obvious as to attract the notice of the recruiter and who would be thus excluded.

There was a peculiar form of ophthalmia which, wherever it was met with, whether in military or civil life, was mainly caused by the vitiated atmosphere arising from over crowding. Of late years that scourge had been practically banished by the sanitary improvements that have been introduced into barracks. It was to his mind the most striking illustration of what such measures could accomplish, and there was no longer any excuse for the existence of the disease. As regards the question of epidemics properly so-called, they could hardly hope to meet the requirements of the case by any system of isolation. Quarantine in such cases was not only a waste of time, money and energy, it was also a cause of much unnecessary suffering to the sick and danger to the healthy.

The event of great interest in the section on

MEDICINE

was the address of the president of the section, Professor Gairdner.

The address dealt briefly with the various methods of healing, and then discussed at length the point whether the practice of medicine—that is, the art as distinguished from the science—had made a single step since Hippocrates. The progress of modern medicine since Cullen's time, he said, had been in the direction of stability not possessed by the art of medicine in any previous stage of its progress. As regards that great revolution in medical treatment of fevers and inflammations, which in some minds occupied in relation to medicine as advanced a position as antisepticism did in relation to surgery, he declared that while he had no doubt at all as to the advantage in some cases, and in a limited sense, of the so-called anti-pyretic or anti-thermic treatment, he had yet to be con-

vinced of the advantage of its application as a routine in typhoid or in any other fever; but it might be readily conceded that both in typhoid fever and pneumonia, as previously treated in German hospitals, with an enormously high mortality, the method in question marked a distinct advance. But he had never ceased to hold, as a teacher of medicine, that all the fermentation of opinion, so to speak, with respect to current remedies and modes of treatment, all tokens of unrest and dissatisfaction, were in reality an advantage to the medical art, and tended both toward progress and stability. The prevention and cure of disease were not, indeed, identical; but the laws which guided the former were in a large measure and necessarily applicable to the latter. The same noxious influences which begot typhoid, for example, tended in a remarkable degree to exaggerate, if not to cause, a host of minor diseases. The same over crowding which was in a great degree the cause of typhoid fever, was a source in hospital wards of pyæmia and erysipelas, in barracks and jails of consumption (and this often among picked men), in certain endemic localities of contagious pneumonia, and probably of diphtheria.

It was impossible in the face of modern sanitation to escape the conclusion that the causes and remedies of disease alike were often to be sought more in the study of groups, and even of multitudes of cases, than the ordinary text-books or in other conventional remedies. In short, the treatment of diseases of every kind had been largely, even if silently, influenced by the thought that the chief disease-breeding factors must also be in individual cases adverse influences to be carefully studied and kept in check by those who would cure disease, and that in chronic cases especially, a large part of the cure consisted in the removal or modification of the injurious action of the causes.

In the section on

SURGERY,

Sir George Porter, presided.

The discussion on the radical cure of hernia, freely participated in, was chiefly confined to descriptions of various

methods employed by the several gentlemen speaking.

Sir Spencer Wells read a paper in which he expressed a preference for Porro's operation over Cæsarian section. Dr. W. H. Allingham read a paper on "The Advantages of Inguinal Colotomy over the Lumbar Operation." The other work in the surgical section was not of special interest.

A communication from Dr. Playfair was read in the section on

OBSTETRICS,

in which he maintained that all puerperal diseases are of septic origin. In the discussion Drs. Lawson Tait, Kidd and Mone-Madden maintained that some such cases are not septic.

Dr. Apostoli read a paper on "Electric Treatment of Fibroid Tumors," which was favorably discussed by Dr. Playfair and Sir Spencer Wells.

The paper by Dr. Sinclair, of Boston, U. S. A., on "Manual Dilatation" was very favorably received.

A number of cases were reported in the section on

PSYCHOLOGICAL MEDICINE,

tending to show that treatment by galvanism may be curative in some forms of insanity.

The work in the other sections was not of special interest to American readers.

Professor Gairdner was elected president of the society for the next meeting, which will be held in Glasgow in 1888.

WM. B. MEANY, M. D.

LONDON, England.

Mr. Editor of the Chicago Medical Journal and Examiner:

THE obstetrical clinique at Pammatone Hospital in Genoa has just closed, and a few notes taken from it will not fail, I hope, to be of interest to your readers. The clinique was opened on Nov. 11th, 1886, and was closed on June 24th, 1887. There have been admitted 118 women; of these 106 gave birth to children, five left the hospital before going through labor, six remained in the hospital at the time of its closure, and one showed symptoms of abortion.

Many pregnancies were complicated with pulmonary tuberculosis, syphilis, enormous œdema of the lower extremities, epilepsy, varicose swellings, bronchitis, mania, and hæmorrhoids. Three gave birth to twins; 60 were unmarried, 16 widows, 52 primiparæ, 66 multiparæ, and some were public prostitutes.

The vertex presentations were 83, facial, 3, and pelvic, 7. Premature births were six, and one abortion. Professor Pajot's forceps were used four times in cranial presentations; once only was version resorted to for a trunk presentation, in a twin pregnancy.

In one of the three named twin gestations there was found a male and a female with double presentation of the vertex; in another, a male and a female with a presentation of the cranium and with a presentation of the nates; in the third, two females, one of whom presented with the hips, and the other with the right shoulder and proclivencia of the corresponding hand.

The amniotic sac, because of its resistance, had to be broken, artificially, four times. The shortest umbilical cord was 27 centimeters, the longest 103 centimeters; the cord was once knotted, twice prolapsed, and 28 times coiled around the neck of the child.

Of the children, one had hydrocephalus, and another was affected with anencephalia and spina bifida in the cervical regions.

Many labors were complicated with metrorrhagia due to uterine inertia, treated with ergot, quinine, electricity, wine, and Credé's method.

The puerperium was also complicated with eclampsia, peritonitis, mania, metrorrhagia, agalaxia, mastitis, fissured nipples, etc.

Two deaths occurred in 118 patients; one during labor, bloodless, and anæmic and without being liberated; the other by typhoid fever, fourteen days after a compound and artificial labor.

Of the new-born, some showed slight jaundice, and quite often many were affected with purulent ophthalmia, due to cold and insufficient nutrition; Neisser's gonococcus was not found. Five died of inanition, although nursed in suitable

cradles according to the Parisian method.

On page 513 of the second volume of the "Practical Treatise on Obstetrics," by A. Charpentier, we read: "When, during pregnancy, one is convinced that a trunk presentation exists, cephalic version must be performed and maintained by all possible means." This practice and teaching Professor Macari does not approve. He criticises and condemns it. In a case of trunk presentation, the professor followed his own plan of *letting alone and waiting*.

On the 3d of last January a woman 33 years old, married, multipara, of a lymphatic and highly nervous constitution, was admitted into the obstetrical ward. She was in the seventh month of her sixth gestation; her first four pregnancies ended in premature, spontaneous labors, the fifth terminated normally. An irregular presentation of the foetus was suspected. An accurate examination was made by inspection, palpation, percussion, abdominal auscultation, vaginal examination and pelvimetry. It was found that the patient had a simple uterine pregnancy, with living foetus; oblique presentation, right shoulder in the second position, with the head to the right, lower than the pelvic extremity of the foetus. The maternal pelvis was regularly developed. The professor concluded to wait, and abstain from any operative act.

After some time the same diagnosis was confirmed, and it was again decided to wait.

On the 9th of March labor began. By vaginal examination there was found a cranial presentation. At 9:45 P. M. of the same day the patient gave birth to a mature foetus, male, sound and healthy,

56 centimeters long, 3,900 grams in weight; vertex presentation in second position; length of labor, 30 hours.

Professor Francisco Macari holds the Chair of Obstetrics and Gynæcology in the University of Genoa, and is director of the obstetrical clinique. His lectures are largely attended by students and midwives, for they are practical full of common sense. His work on obstetrics, gynæcology and pediatrics is concise and well written. It has been translated into French and German, and has been honored with three editions. Professor Macari doesn't think much of germs. During the cholera epidemic of Genoa, two years ago, he offered to swallow a certain amount of comma-bacilli to prove their innocuousness.

Professors M. Semmola of Naples, and F. Durante of Rome, will be the Italian delegates to the International Medical Congress at Washington next September. Professor Semmola is preparing an important paper on bacteriology. Professor Durante will protract his visit two months, having been ordered by his government to make a scientific tour through the United States; to visit hospitals and medical institutions, and to make a report. The Professor holds the Chair of Surgery at Rome, and enjoys a widespread and well-deserved reputation for his bold and skillful operations. He is a fine looking man and a fluent speaker. Chicago, always foremost and so well known for noble enterprises and generous hospitality, will not fail, I hope, to entertain and render due honors, to the brilliant surgeon of our Eternal City.

A. LAGORIO.

CHIAVARI, ITALY, July 10th, 1887.

EDITORIAL.

NINTH INTERNATIONAL MEDICAL CONGRESS.

The time is now near when the next International Medical Congress—the ninth triennial—will convene in Washington. As this will be the first one of them to meet in America, it is gratifying to find that the indications at present are that it will be a very successful one. The announcements already made of the scientific work to be done show no lack of interest, on the part of the medical world, in the object for which the congress meets. Many of the names announced include in their number men of such standing in the profession of medicine as are a guarantee that much of the work will be of a high scientific character. From a numerical standpoint, the registry-list to this date indicates that the attendance will be of the largest of any congress yet held, and embraces the names of several hundred Europeans, as well as of those of other foreign countries. The local committee of arrangements has been untiring in an effort to have the social feature of it in keeping with the greatness of the occasion, although the time of the year at which the congress will be held makes it an unfavorable one, socially, in Washington. The programme, as announced, embraces in addition to the social entertainments in the city, an excursion to Mount Vernon, and one, for the foreign members to Niagara Falls, with an escort of some of the committee of arrangements.

Arrangements have been made with the principal ocean steamship companies for reduction of rates for those who will attend the congress, as well as for members of their families who may accompany them. A similar reduction has been made by the most important railroads of this country, and special excursion rates for a round-trip across the Continent for those who may wish to visit the Pacific Coast, after the adjournment of the congress. A committee of reception has been organized in each of

the cities of New York, Philadelphia, Boston and Baltimore to aid foreign members of the congress, on their arrival, in their efforts to obtain requisite information regarding matters connected with the congress. In New York, the Hoffman House has been selected as the headquarters of the reception committee, and a Bureau of Information organized, under the supervision of members of that committee.

Careful effort has been made by all officials connected in any way with the congress to anticipate, and to provide, as far as practicable, for the needs of all of the large numbers who are expected to attend the great congress.

It will doubtless be the greatest event for the medical men of America that this country has seen, and all will hope that nothing may occur to mar the occasion to which so many of the medical world are now looking forward with so much hope and such pleasant anticipation.

TYROTOXICON IN FOOD.

At the meeting of the Michigan State Board of Health, April last, Professor Victor C. Vaughan, made a report on tyrotoxin, which he has found in poison chesse, milk, ice cream and oysters, and an abstract of this report has been published, by the Board, in advance of the annual report, which will contain the paper in full.

Professor Vaughan has established the identity of tyrotoxin and diazobenzole, and he thinks that the latter, or some closely allied substance, will be found in all those foods which, from putrefactive changes, produce nausea, vomiting and diarrhoea. He further thinks that while tyrotoxin is not the only poison which may be developed in milk, and that while decomposed milk is not the only cause of the summer diarrhoeas of children, the rational and imperative demand in such cases in milk-fed children is to stop feeding milk in any form. He recommends as food substitutes, chicken and mutton

broths, meat juice, and rice or barley water.

The abstract contains Prof. Vaughan's rules for the prevention of the development of tyrotoxicon in milk. They are very good and thorough, but compliance with them in large cities with present methods and prices is impracticable.

BACTERIA AND TETANUS.

In the November number of this journal, for 1882, a paper by Dr. Lester Curtis appeared, describing micro-organisms found in the blood of a tetanus patient. Up to that time no mention seems to have been made of any such organism in connection with this disease.

No direct conclusions were drawn from the observations then reported, but the impression conveyed was not favorable to the causation of the disease by the bacteria described, since they did not diminish in number with the improvement of the symptoms, and continued to exist in the blood after recovery was complete. They were shown in blood, freshly drawn from the finger, at a meeting of the Illinois State Microscopical Society, some weeks after the patient had resumed work and was apparently perfectly well. Since that time, in Europe, considerable attention has been drawn to the connection of micro-organisms and tetanus, but the statements of different observers by no means agree. A recent article by Doctor Bellmer, extending through two numbers of the *Berliner Klinische Wochenschrift*, for July 25th and August 1st, has recalled attention to the subject. The writer reports two cases of tetanus resulting in death; one of a man from a splinter of wood under the finger nail—the other, of a boy

who drove a small piece of a sharp stone into the foot while going barefoot. In each of these cases inoculation-experiments were made with mice and guinea pigs. Splinters from the wood were trust into the sub-cutaneous tissue.

In the case of the boy, bits of the tissue from the neighborhood of the wound were inserted under the skin, and also samples of the earth from the playground where he received his injury. In every case tetanus followed. There seems, from these experiments, to be some evidence of toxic influence of the wood and the earth, although no mention is made of any control-experiments to remove doubt as to the possibility of other sources of the poison, as, for instance, impurities floating in the air.

Two sorts of bacteria are mentioned as having been found in the tissues of the patients: one a bacillus, and the other a micrococcus, both of which, so far as we can gather from the description, which is not very minute, and is without illustration, were described in Doctor Curtis' paper. The proof of the connection of these bacteria with the disease is promised but not given.

In this connection it may be remarked that Doctor Brieger (*Berliner Klinische Wochenschrift*, April 25th, 1887) claims to have shown that several compounds belonging to the ptomaines produce tetanic symptoms, but that one in particular, which he names—"tetanin"—is the cause of the symptoms of tetanus. This substance seems to have been produced by the growth of bacteria. In this indirect way, bacteria may be the cause of the disease, though in themselves and apart from their product they may be harmless.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

THE Thirteenth Annual meeting of this society occurred July 13th, 14th, and 15th, 1887, at Crab Orchard Springs, Kentucky.

Dr. John E. Link read a paper detailing three cases of gun-shot wounds of the abdomen; two recovered without surgical interference and one with such interference, and he claimed:

1. An abdominal wound should be probed only with a grooved-director as a guide to the scalpel.

2. Any wound of this cavity and viscera may recover with fixation, narcotization, and abstinence from food.

3. The cavity of the abdomen may be invaded by the surgeon in recent injuries as well as for other conditions. His use of opium was to relieve pain and to secure rest for the bowel.

In the discussion which followed, the weight of opinion was in favor of laparotomy in all cases of penetrating wounds of the abdomen. The majority who discussed the paper believed in the use of opium. Some condemned it, and advocated purgatives according to Tait's method,

The annual address of the president of the society, Dr. I. N. Love, under the title "The Pressing Needs of the Profession," discussed the necessity for a high-standard in medical education, the excessive number of medical colleges in this country, and the desirability of a union of all schools of medicine upon a common and broad basis.

The paper of Dr. Preston Scott, on "The Use of Chloroform During Labor," advocated a much more general use of the drug than is common. In the discussion which followed, the proposition was strongly indorsed. Some of those who discussed the paper thought fatty heart an absolute contra indication, others did not. Some thought the use of morphia with the chloroform very desirable.

Dr. George J. Cook read a paper on "Chronic Constipation," in which he

classed all such cases as atonic, or obstructive. He considers disregard of natural laws the chief cause of the atonic variety, and large injections of hot water and massage along the colon the best treatment for it.

The most frequent causes of the obstructive variety, he thinks, are irritability of the sphincter ani muscle, and contraction at the upper end of the rectum.

Those taking part in the discussion of this paper were uniformly of the opinion that dilatation of the sphincter ani is the proper treatment for the obstructive variety of the disease. The degree to which dilatation of the sphincter should be carried was not generally stated by those discussing the subject.

Dr. L. S. McMurtry presented a specimen from a case of pyosalpinx, with removal four days after confinement. The temperature had been 105° F., and at the time of the operation was 103.5° F. The patient made a good recovery. The author of the paper thought the case of special interest for the reasons: 1. The history of the case indicated that the pyosalpinx was caused by a gonorrhœa, and was of long standing. 2. That the case demonstrates that conception may occur with unilateral pyosalpinx present.

Dr. A. C. Bernays presented two pathological specimens, one, the pyloric end of the stomach and part of the contiguous duodenum, removed because it was carcinomatous. In the operation of removal the ductus communis choledocus and the pancreatic duct "were torn off," but "were carefully stitched into the line of union on the posterior surface." The patient died eighteen hours after the operation. The autopsy showed "that there had been no hæmorrhage, the stomach held water, and bile discharged into the bowel."

The second specimen was a foetus with a tail-like projection, and homologous arches, such as are found in fishes. The case was reported because of its bearing upon the theory of evolution.

Dr. Y. H. Bond read a paper upon the general subject of removal of the ovaries, asserting that the operation is too often unnecessarily done.

D. J. B. Green read a paper on "Gonorrhœal Peritonitis," in which he claimed that the infection does travel as far as the peritoneum. He reported three such cases in which abdominal section was beneficially made. The discussion of these papers developed a variety of opinions.

Dr. G. W. McCaskey read a paper in which he described and advocated an apparatus of his own construction for

intra-pulmonary medication by means of vapors at high temperatures.

Several other papers were also read and discussed.

The association adopted a revised constitution, and elected the following officers for the year 1887: Dudley S. Reynolds, President; A. Dunlap, Y. H. Bond, A. R. Jenkins, H. C. Fairbrother, D. H. Thompson, Vice-Presidents; J. Lucius Gray, Permanent Secretary; A. H. Ohmann-Dumesnil, Treasurer.

The society adjourned to meet in St. Louis in September, 1888.

SURGICAL SOCIETY OF BOURNEVILLE.

(From "*Le Progres Medical*," No. 22.) Translated by Professor Frank Billings.

PROFESSOR SEE reported the following case: A young man, coming from Salonica to France, was troubled with obstinate constipation during the voyage. On his arrival in France, he underwent various kinds of treatment usual in such cases. Nothing relieved him. He was sent to the "Maison de Santé," where electricity was tried without success. The abdomen was enormously distended and painful, but there was no vomiting,

no fever. Water was injected into the intestine in great quantities, to forcibly dilate it, and at the end of four days the patient was cured. (Stools abundant). This case is curious, because the constipation lasted forty-two days. The respiratory troubles, caused by flatulency, were such that it was necessary to tap the intestine, at different times, with a slender trocar in order to allow the gas to escape. Each capillary tapping gave temporary relief, at once.

ACADEMIE DE MEDICINE, BOURNEVILLE.

(From "*Le Progres Medical*," No. 31.) Translated by Professor Frank Billings.

PROFESSOR HAYEM read a communication upon the treatment of dyspepsia of infants. He wrote particularly of green diarrhœa and its microbic nature. He finds hydrochloric and lactic acids equally efficacious and salutary. Having observed that when one child was affected with diarrhœa, others in the same crib were quickly affected, he suspected the green stool to be cause. He therefore instituted prophylactic measures; removing soiled linen at once and wash-

ing it in a one per centum solution of corrosive sublimate. Since this prophylaxis was instituted green diarrhœa has ceased to exist in the children's wards of the hospital St. Antoine. Professor Hayem and his interne, M. Lesage, have proven the cause of the green color in the stools to be a special bacillus, and that it exists in the intestine. Professor Hayem finds lactic acid the best medicament to neutralize the effects of liquids infected with this bacillus.

CONCERNING PARALYTIC PHENOMENA IN SIMPLE PSYCHOSIS,
ESPECIALLY MELANCHOLIA.

Report of a Clinic by Prof. Benswanger, of Jena, by Theodore Tichen. *Berliner Klinische Wochenschrift*, June 27, 1887.

THE writer refers to the fact that in a case of melancholia, or mania, physicians are accustomed to look for paralytic phenomena in the patient, and, if these occur, give an unfavorable prognosis, regarding the case as one of progressive paralysis.

But Seifert, in 1853, described cases "which in part, at least, belonged to pure mania and melancholia, with disturbance of the innervation of the iris. In two cases of simple mania there occurred a dilatation of the pupil on one side, which followed in its intensity all the variations of the psychic condition and disappeared for the first time on the occurrence of full recovery."

"Bailarger also emphasized the fact that *mania ambiticuse* with slight motor disturbances did not always lead to paralytic imbecility."

"Nasse confirmed Seifert's observations, and maintained that asymmetrical innervation of the facial nerve, hypoglossal nerve and the pupil, constant, as well as transitory, might not be of serious importance, and occurred in functional psychosis also, and, indeed, more frequently in such cases than in sane persons."

"Since then Tiggs alone has described similar paralytic phenomena, especially one-sided paresis of the face in simple melancholia, mania and dementia."

Later writers ignore the subject.

"I have observed in three cases of functional psychoses which were conditioned upon neither organic disease of the nervous system, nor upon hysteria, nor traumatism, etc., but occurred simply as phenomena attendant upon severe melancholia."

"In two cases the trouble was a stupor of exhaustion (*erschöpfungs-stupor*) and a melancholia which were associated with a moderate, but distinct, one-sided facial paresis, during rest as well as during active and mimetic motion."

"After perfect recovery there was perhaps still a slight difference between the two sides of the face while at rest, active innervation was perfectly symmetrical. The greater width of the fissure of the eye of the paretic side in this case had pointed to the participation of the eye facial. Asymmetry of the skull did not exist. Other disturbances of innervation were not noticeable."

"The third case, on account of its marked peculiarities, may be given at length in the details of importance to the question."

"Kt., owner of a brick kiln, born in 1848, heavily burdened by inheritance, badly pulled down by the campaign of 1870-1, a sufferer from neither syphilis nor alcoholism. In the year 1875 he had, after a great fright, a severe attack of melancholia. He recovered after treatment in an asylum. He remained well for eleven years, when he had a slight attack of indigestion."

"In October, 1886, after the death of a child, he became ill again mentally, and, on account of severe depression, in which he attempted suicide, he was brought into this institution. Here, mentally, he was the picture of severe melancholia without the slightest intellectual defect; bodily, signs of premature senility, increase of the tendon and skin reflexes, in other respects almost no disturbance. In the progress of the mental affection there appeared paresis of the mouth facial (at rest as well as during active innervation), at one time on the right, at another on the left; its intensity corresponded in all respects with the degree of the melancholia. Meanwhile, after the institution of opium treatment (0.12 extr. opii. twice a day) severe retention of urine was added to the symptoms. With the cessation of the opium treatment, the bladder symptoms disappeared. But there occurred a constant dilatation of the right pupil, (with prompt

reaction) and, in addition, complaints of tension and weight in the limbs.

"After about a month the psychic condition improved, the difference in the pupils was smaller, and the changing difference in the face no longer occurred.

"A relapse occurring, caused by the accidental visit of a friend, the difference between the pupils showed itself again quite plainly.

"About two and a half months after his reception he was dismissed; the difference between the pupils was then no longer to be noticed, and motility, sensibility and intellect were intact."

"Cases like the two first mentioned are certainly more frequent than one would think. I might conjecture that here the functional disease brings forward only more prominently an already existing congenital deficiency in innervation. Hysterical symptoms also appear not seldom to be located by preference in such deficiently innervated nerve territories, or occur with greater intensity."

"In the third case which I may regard as melancholia, it is certainly possible to make the premature senility, next to the severe melancholia, answerable for the unusual parietic phenomena, without being willing to contend that it is self-evident that such a patient may have a special predisposition to a later progressive paralysis or senile dementia. Among paralytics especially, also, the degree of the paralysis is by no means in that close relation to the intensity of, for example, the of depression. The chief stress is in every case to be laid upon the absence of intellectual defects; these are the first symptoms that establish the bad prognosis of anomalies of the passions and paralytic phenomena. At the same time a case like the above forms a transition from simple melancholia to curable *folie paralytique*; from the latter it is separated by the lack of the paralytic disturbance of speech."

"In connection with these cases attention may be drawn to still another paralytic phenomenon in functional psychoses, especially melancholia and the stupor of exhaustion; this is a slight insufficiency of the internal recti muscles

of the eye, for the most part on both sides, occasionally with the consequence of slight muscular asthenopia. It betrays itself by the loss of the accurate direction of both eyes toward the finger which has been held up when one eye is covered by the hand, the covered eye deviates slightly outwards. That the case behaves here purely as a phenomena attendant upon the psychosis is shown by this, that the insufficiency does not exist long before the psychosis and disappears upon recovery."

"Finally I may be allowed to give space to the following single observation concerning the innervation of the pupil, although, of course, here, as in Seifert's cases, it occurs more often as a result of irritation of the sympathetic than as a paralytic phenomenon."

"Brissand and Marie have of late repeatedly described cases in which the hypoglossal and facial nerves were involved in a hysterical hemiplegia. In their clinic there was a case of hysterical paranoia in which the left half of the body, also including the mouth facial was parietic. The tongue did not deviate, but there existed a *dilatation of the left pupil whose intensity went hand in hand with the hemiplegia*. The reactions of the pupil were well retained."

"In another case, of severe idea of constraint in a man sixty years of age, there existed a difference in the pupils for a few days, and occasionally also for a few weeks, in favor of the right eye, then it was transferred and the left pupil was again plainly wider. Now and then there was equality of the pupils. This variation has now been observed many times. Attacks of one-sided migraine (whose co-existence with melancholia, for example, is not rare) does not exist."

"Theoretically, the above paralytic phenomena arrange themselves as phenomena attendant upon simple psychoses (Freusberg). The foundation of such paralyzes are congenital deficiency of innervation, fatigue and disturbance of the circulation of the cortical and sub-cortical centers (indirect influence of the sympathetic, here belongs case Kl.)."

"Practically the cases which have been cited seem to me to make it proper

to be careful concerning the diagnostic realization of paralytic phenomena *when intellectual defects are wanting*. The latter is the first thing which can demonstrate positively organic disease of the brain. On the other hand, we know today that a typical progressive paralysis

may develop from an inorganic psychosis, as, for example, hysteria. But those paralytic phenomena in the transient psychoses always possess value as warning symptoms."

LESTER CURTIS.

ON THE CAUSES OF SUBCUTANEOUS INFLAMMATION AND SUPPURATION.

BY P. GRAWITZ AND W. DE BARY, (VIRCH. ARCH. FÜR PATHOLOG. ANATOMIE IN PHYSIOLOGY U. FÜR KLINISCHE MEDICIN. B'D. CVIII, 1887.)

[From a Review in the *Centralblatt für Bacteriologie und Parasitenkunde*, I., B'd. No. 1, 1887, (Beumen, of Greifswald). Translated by Professor Frank S. Johnson.]

GRAWITZ, in the *Charité Annalen*, XI., 1886, under the title "Statistisch und Experimentell Pathologischer Beitrag zur Kenntniss der Peritonitis," stated his views upon the causal conditions of purulent inflammation of the peritoneum. He then expressed the opinion that the various bacteria of pus were not sufficient in themselves to cause purulent peritonitis, but that besides these specific causes of disease other forces inherent in the tissues must be brought into activity.

In the work at hand the same question is pursued in its relation to the subcutaneous tissues. Further investigations are contemplated to inquire into the causes of pleuritis. Grawitz and Bary consider the subject under four heads:

A. What is the effect of the absorption of unirritating fluids from the subcutaneous tissues.

The opinion held at the present time that the entrance of bacteria into the subcutaneous tissues, as the only exciting cause of suppuration, is not deserving of unqualified acceptance. It seems essential that the bacteria should form colonies and multiply in the tissues or upon wound surfaces before they are absorbed. When immediate absorption occurs they are harmlessly eliminated from the body.

B. What is the effect of irritating watery solutions?

(1). Concentrated salt and sugar solu-

tions, either sterilized or containing staphylococcus aureus, injected into the tissues caused oedematous swelling, but no suppuration in dogs or rabbits. The addition of even considerable quantities of staphylococci was without effect. Suppuration resulted only when there was necrosis of the skin.

(2). The effect of acrid substances in watery solution.

I. *Group*.—Germ-destroying substances. Corrosive sublimate, 1 per cent.; nitrate of silver, 1 per cent.; absolute alcohol, chloride of zinc, 1 per cent.

(a). Corrosive sublimate in dogs and rabbits underwent simple absorption,—in most instances it was accompanied by transitory swelling, but there was no suppuration.

(b). Experiments were conducted with nitrate of silver, both in sterilized solutions, and in solutions containing pus-microbes. The addition of the latter was without influence, inasmuch as the germ-potency of the microbes was destroyed by the solution (5 per cent., and much weaker). Very weak solutions (0.5 per cent.) were simply absorbed. Stronger solutions (5 per cent.) produced abscesses in dogs. The pus collected under aseptic conditions was free from germs.

It seems evident that suppuration is a reaction of animal tissues, which may be induced by a chemical substance without the influence of bacteria—a substance which may in fact destroy germs—pro-

vided the reagent is of the requisite strength, and is introduced into the tissues in sufficient quantity.

(c). The injection of absolute alcohol containing pus-microbes, or followed immediately by the injection of water holding the microbes in suspension, did not cause suppuration.

(d). Chloride of zinc in 1 to 5 per cent. solution gave the same results.

II. *Group*.—Soluble acrid substances, not germ-destroying. Acids, potassium and sodium hydrate and ammonia.

(a). The injection of acids, either in strong or weak mixture, did not produce suppuration. The addition of staphylococci (*aureus*, *citreus*, *albus*) did not alter the result.

(b). The hydrates of potassium and sodium gave similar results. The lye swelled the tissues and destroyed them. It did not produce favorable conditions for the growth of microbes within the body.

(c). Ammonia solution - sterilized. When introduced in small quantities and in weak solution it was absorbed without producing inflammation. Larger quantities (4-6 c. cm.), and stronger solutions caused abscesses in dogs. Cultures of this pus upon agar agar remained sterile. Repetition of this experiment, with the addition of pus-microbes, gave the same result, except that in the latter colonies of micrococci appeared on the agar agar. "These experiments show conclusively that ammonia of sufficient strength causes violent inflammation and suppuration. It provides suitable conditions in the subcutaneous tissues for the development of the microbes of pus. In very weak solution it does not injure the tissues.

C. How does the absorption of irritating oily substances act?

(a). *Turpentine*.—Preliminary experiments showed that turpentine was an active germicide. Its effect upon the subcutaneous tissues varied in different

animal species. Its introduction in rabbits and guinea pigs, with or without the addition of pus-microbes, was followed by inflammation, but no suppuration. In dogs, on the contrary, it proved to be an active pus-producing agent.

(b). *Croton Oil* is not a germicide. Experiments showed that it was capable of exciting inflammation. In small quantities it caused in rabbits a watery or fibrinous exudation into the tissues. In larger quantities it corrodes; has a toxic effect, and, under certain conditions, may cause suppuration. When pus-microbes are added, suppuration always follows.

D. How does the injection of pus-microbes act?

Pus-microbes, in themselves, are not capable of inducing suppuration in healthy tissues—dogs and rabbits.

Various chemical substances can, without the aid of bacteria, induce suppuration under favorable conditions. When used in proper quantity, and in proper concentration, and upon animals whose tissues will react, suppuration invariably follows. Certain chemical substances in proper strength fit the tissues for the growth of pus-microbes.

Grawitz and Bary conclude that the same importance is attached to the ptomaines of pus-microbes as has recently been demonstrated for those of numerous other bacteria. The ptomaines of pus-microbes, acting as chemical irritants, prepare a soil in the subcutaneous tissue upon which the microbes may grow. Their effect is very readily seen upon the introduction of sterilized cultures, in which the fungus-poison is the only active agent. Sterilized cultures of the yellow pus-microbe induced suppuration in dogs. The pus contained no germs. For the formation of ptomaines the presence of free oxygen is of the utmost importance.

ABSTRACT OF A CLINICAL LECTURE ON THE ABUSE OF MINERAL WATERS.

BY PROFESSOR GERMAIN SÉE, AT HOTEL DIEU, PARIS.

[From the *Journal de Médecine et de Chirurgie Practiques*. Translated by Professor Frank Billings].

WATERS naturally gaseous, acidulated or charged with carbonic acid, contain the latter in a proportion from 50 to 200 and 300 volumes of gas in a litre of water; when the salts contained in the waters are inferior to 1 per 1000, whether iron, calcium or bicarbonate of sodium, they merit only the name gaseous or acidulated, and have no virtue but that of carbonic acid gas.

This gas induces in the stomach an excitement of the mucous membrane and gastric nerves, producing an immediate sense of exhilaration and a certain stimulation of appetite, which oftentimes proves detrimental to the patient. Taken in large amounts and used continually, all of these waters introduce a new quantity of gas into the stomach, which mixes with that which already exists in the form of atmospheric air in the stomach, and gas of decomposition, especially carbonic acid, in the intestine; this gas materially aids in causing a sluggishness of the stomach, an atony with or without painful spasms. When these waters have a sodium base, they present the great advantage of stimulating the secretory function; but of what avail is a water feebly mineral and strongly carbonic, especially an artificial carbonic water, unless to augment the tympanism? The moving action of the gas upon the stomach or intestine cannot be estimated; for, taken in large quantities, it hinders rather than facilitates the peristalsis. The most incontestable effect of gaseous mineral waters is their action in augmenting the urinary secretion. The reason for this diuretic action is that under the influence of active gas it establishes a gastric mucous hyperæmia which accelerates the resorption of the mineral water. This is without doubt why alcoholic and gaseous drinks, like champagne, are more intoxicating than those which are

not gaseous. These diuretics are generally pernicious, for they excite the renal secretion more than the vesical excretion; now renal irritation has no advantage; waters have power, for example in gravel, by carrying away the sand from the tubes of the kidneys, but, at the same time, excessive secretion is to be feared, because it may produce artificial lesions. If the kidneys are injured in any way, the use of water is dangerous. In all cases of nephritis, interstitial or parenchymatous; in the albuminuries, from all causes, mineral waters are not alone contra-indicated, but are disastrous. Professor Sée gave two examples in which the use of diuretics in an albuminous, gouty nephritis, resulted in death. It is necessary then to avoid the ill use of gaseous waters, which are generally more agreeable than efficacious.

Among mineral waters presenting the most incontestable advantages, the alkaline sodium waters must be placed, *and appear to be effective in most cases of dyspepsia*. Of these, Vichy waters rank first, chiefly by the simplicity of their composition; they dissolve at once in the stomach by the intervention of the gastric acids. But clinical experience demonstrates that if the amount of mineral water taken is very considerable, if taken during or after a meal, especially if it acts upon a weak or dilated stomach, far from facilitating digestion, a veritable putrid fermentation is produced; as when one tries to digest an albuminous body with a neutral gastric substance.

Alongside of numerous indications, there are contra-indications, chiefly in flatulent gastralgia, in simple intestinal debilities or in hæmorrhoides; they are plainly injurious in muco-membranous enteritis as well as in intense and serious dilatations of the stomach.

It is then principally in dyspepsias,

called chronic, that Vichy water is indicated; but in all cases it should be taken half an hour or an hour before eating; thus preparing and provoking the gastric secretion; taken at meal time it loses all of its advantages.

For habitual drinking, Professor Sée considers tea the most digestive form; a light infusion, taking at least one-half litre and at a high temperature; for the noonday meal its advantages over wine are numerous; it does not ferment; it contains only traces of tannin, whilst coffee contains infinitely more, which coagulates the albumen. The aerated drinks, by the exciting impression they produce upon the stomachic mucous membrane, makes the aliments of the stomach rapidly disappear, and submits them also to the action of the intestino-

pancreatic juice. Some patients can digest only by the aid of hot drinks.

An important remark relating to alimentary drinks is that distilled drinks, diluted in water, succeed often much better than wine. There are patients who cannot bear wine without complaining of acidity, or of sensations of hot iron, and who can take rum or brandy with water added, especially after combustion of these liquors.

As a light purgative for dyspeptics, Professor Sée habitually prescribes a preparation composed of equal parts of sublimed sulphur, cream of tartar and calcined magnesia; one spoonful in coffee once or twice a day; *i.e.*, two or three grammes of each of these laxative powders.

THE PUPIL IN ITS SEMEIOLOGICAL ASPECTS.

In a very interesting paper by Mac-ewan, in the *American Journal of the Medical Sciences* for July, 1887, the following conclusions are presented:

(A) 1. When the function of the brain is in abeyance, the pupils are in a state of stabile mydriasis.

2. This may arise either from temporary suspension or from abolition of function.

3. Temporal suspension is illustrated by shock, and the effect of some poisons; while the abolition of function is exemplified by extensive laceration and compression of the brain.

(B) 4. When the function of the brain is interfered with by conditions usually included under the term "irritation," the pupils are in a state of myosis; sometimes labile, but generally stabile myosis.

5. This "irritation" or interruption of function may be seen during certain degrees of cerebral anæmia, produced experimentally, and not a pathological result; certain amounts of brain pressure, and certain stages of intracranial inflammation.

6. These are illustrated in persons

who have suddenly lost a considerable quantity of blood (about a fifth of the whole); in the growth of intracranial tumors, and the formation of sanguinolent serous and purulent effusions, when the degree of pressure may be denominated as "medium," and at certain periods of meningitis and encephalitis.

(C) 7. The same pathological factors which cause myosis may also cause mydriasis, the degree in which these factors are present being the determining point between the former and the latter, and not *merely* the particular locus in the brain.

8. It is well illustrated by cases where the hemorrhage is repeated, and is finally pushed to syncope; in intracranial pressure, which is gradually increased until it becomes great, such as arises from tumors, blood-clots, and inflammatory products.

(D) 9. When the function of one-half of the cerebrum is placed in abeyance by a superficial or cortical lesion, the pupil on the same side as the lesion is in a stabile mydriasis.

10. This is well illustrated in cases of

intracranial sanguinolent effusion consequent on injury (see list of cases).

(E) 11. When the function of one-half of the cerebrum is interfered with by some source of cortical irritation, the pupil on the corresponding side to the lesion is in a state of myosis.

12. This is illustrated by traumatic and pathological lesions affecting the cortex of the cerebrum.

(F) 13. Hemorrhage into the pons Varolii when small, causes strongly contracted pupils; but when it is more extensive, involving the gray matter beneath the aqueduct of Sylvius, a state of stabile mydriasis is induced.

14. Effusions into the lateral ventricles when small, produce contraction of the pupils, but when the effusion is great stabile mydriasis ensues.

15. Inequality of the pupils indicates a unilateral lesion or lesions.

16. When the lesion is cortical and unilateral the pupillary manifestations are on the corresponding side. When the basal nerves are affected unilaterally the pupillary effect is manifested on the same side as the lesion. When the lesion is unilateral and affects the function of the white fibres of the cerebrum, the opposite pupil is generally affected. When the basal ganglia are implicated unilaterally the pupil is sometimes affected on the same side as the lesion, occasionally on the other side.

In a case of cholesteatoma and in another of glioma of the right optic thalamus, dilatation of the left pupil was found (*Ross*, vol. ii, p. 572).

In lesions of the cerebral peduncles the pupil is affected on the same side as the lesion.

Lesions in the corpora quadrigemina affect both pupils, irritation* causing contraction, destruction causing dilatation and immobility.

Section or destruction of one optic tract causes dilatation of the opposite pupil and blindness of the opposite eye.

17. Irritation of the cord, especially the cilio-spinal axis, produces dilatation of the pupils, while destruction of the

cord causes contraction. These effects are generally seen in both pupils, though, experimentally at least, they may be confined to the same side as the lesion.

18. The pupils are affected in the same way by lesions of the sympathetic, though in unilateral lesions it is only the pupil on the same side as the lesion which is affected.

19. Speaking generally, when myosis is due to a cerebral cause, it indicates the earlier stages of various affections; when due to a spinal lesion it points to a most serious paralysis, often to the destruction of the part. When mydriasis arises from a cerebral lesion it is generally present in large amount; when due to a spinal affection it indicates irritation of the part.

MYOSIS OCCURS UNDER THE FOLLOWING CONDITIONS:

1. When a bright light acts upon the retina.

2. Accommodation for a near object.

3. Rotation of the eyeball inward.

4. Local irritation or painful affections of the eyeball.

5. Irritation of the oculomotor nerve.

6. Paralysis of sympathetic roots of lenticular ganglion or trunk of sympathetic in the neck. In paralysis of the fifth there is myosis and inflammation passing on to destruction of the eyeball.

7. Paralysis of the cilio-spinal region of spinal cord. All affections which destroy the cervical spinal marrow and intercept its conductivity produce congestion of the face and contraction of the pupils. In neurosis, which suspends or diminishes the tone of the sympathetic or spinal axis.

8. Encephalic congestion, such as: obstacle to return of blood in jugulars; venous congestion due to cardiac causes; active hyperæmia, plethora, fevers, pneumonia, hepatitis, etc.; when animal is suspended by the heels; in early stages of meningitis and encephalitis; in acute mania with marked activity of the cerebral circulation; in chronic mania pupils are variable, when contracted are said to

*Unilateral electrical stimulation causes dilatation of both pupils, the opposite one becoming first dilated. Ferrier explains this as the result of irritation of a sensory structure, in this case acting through the medium of the anterior roots of the second dorsal nerves which ascend in the cervical sympathetic.

indicate supervention of paralytic dementia.

9. During sleep; some believe this to be due to the congestion of the cerebral vessels and those of the iris (Mosso); others, to the inward rotation of the eyeball.

10. In early stages of cerebral tumor.

11. In small hemorrhages into the cerebellum. In irritation of the cerebellum, contraction of the pupil on same side as lesion ensues.

12. Electrical stimulation of the angular gyrus frequently causes contraction of the pupil.

13. During forced expiration, when the eye is at the same time passive. Also generally seen during the period of apnœa in Cheyne-Stokes respiration.

14. Convulsions arising from meningo-encephalitis are said to be accompanied by myosis, while in convulsions due to epilepsy and in epileptiform fits they are usually accompanied by mydriasis.

15. When the eye contracts on accommodation to a near object, yet does not contract to light, this indicates a lesion situated between the corpora quadrigemina and oculomotorius. This affection is known as the Argyle-Robertson symptom. It is seen in locomotor ataxia, and occurs in the progressive paralysis of the insane.

16. During uræmic coma.

17. Myotics: physostigmine, nicotine, pilocarpine, morphine, muscarine.

MYDRIASIS OCCURS UNDER THE FOLLOWING CONDITIONS:

1. In darkness or in subdued light.

2. Accommodation for distant objects.

3. Rotation of the eyeball outward.

4. In forced movements discharged from the medulla; vomiting, swallowing, chewing, forced respiration.

5. Paralysis of the oculomotor (accompanied or not by immobility of eyeball, external strabismus, diplopia, etc.).

6. Destruction of the optic nerve; amaurosis. When unilateral, associated movements continue.

7. Irritation of sympathetic; powerful impressions on sensory nerves; strong moral emotions, mental pain, grief, fear; neuralgia of the fifth nerve.

8. Irritation of the spinal cord, especially cilio-spinal region.

9. Encephalic anæmia: In all cases where there is reflex contraction of the vessels of the head; when loss of blood from the body is excessive; obstruction of the carotid arteries; in thrombosis of brain sinuses; dilatation of mesenteric vessels when extreme; syncope, intense cold, rigors; dyscrasias of the blood, convalescence, cachectic conditions; asphyxia, epilepsy, in certain stages of these affections.

10. Pressure of cerebrum, when great in amount, as from hemorrhage, neoplasms, etc. In the last stages of meningo-encephalitis.

11. In cerebral softening. In acute dementia (oedema of cortex cerebri) observers state that the pupils are invariably dilated (Hutchinson).

12. In idiots the pupils are generally dilated.

13. During deep inspiration, generally in respiratory period of Cheyne-Stokes breathing.

14. Hemorrhage into centrum ovale and into cerebral peduncles.

15. Ferrier produced dilatation of opposite pupil by destructive lesion of the optic tract in the thalamus, indicative of rupture of the centripetal fibres to the irido-motor nucleus in the floor of the Sylvian aqueduct.

16. In hydrophobia there is mydriasis.

17. Mydriatics: atropine, homatropine, duboisine, daturine, hyoscyamine. Curare injected subcutaneously in animals (five to ten centigrammes) induces in one or two hours complete paralysis of the third nerve.

THE EFFECT ON THE PUPIL OF LOCAL CONDITIONS OF THE EYEBALL:*

1. Hyperæmia of the iris produces contraction of the pupil which darkness scarcely diminishes.

2. Presbyopia and hypermetropia

* The writer is indebted to Dr. Thomas Reid for revising this list of pupillary effect occasioned by local conditions of the eyeball.

cause contraction of the pupils in cases where continuous and excessive strain for near accommodation has been long continued, and has produced asthenopia.

3. Pupillary atresia, consequent upon chronic irritation with posterior synechia, producing contraction of the pupil.

4. In synechia total dilatation is impossible, the iris dilating only where free, hence the pupil is irregular. If the synechia is annular the pupil is both contracted and immobile.

5. In microria there is a congenital state of extreme contraction.

6. In glaucoma the pupil is dilated, contracting little or not at all to the action of calabar bean.

7. In coloboma, both in the congenital form and after iridectomy, there are irregularity and immobility of the pupil.

8. In idiopathic mydriasis there is little contraction to the action of light or myotics.

9. In certain cases of amblyopia and amaurosis there is no dilatation of the pupil.

10. In hippus pupillæ there are alternate contraction and dilatation often accompanied by nystagmus.

11. Inequality of the pupils exists in some who have different degrees of refraction in the two eyes, one being emmetropic and the other myopic.—*Quarterly Compendium of Medical Science.*

THE FORMS OF ALBUMEN IN THE URINE, AND THEIR TESTS.

DR. T. GRAINGER STEWART, physician in Ordinary to the Queen for Scotland, in a lecture at the University of Edinburgh, gave the following account of the forms of albumen found in the urine, and the results of a careful and prolonged inquiry which, along with Dr. Stevens, he has made as to the comparative delicacy of the leading tests for serum albumen, and as to the value of the different methods of quantitative analysis by which the amount of albumen may be determined.

The forms of albumen met with in the urine are :—

I. *Serum Albumen*, a substance which, according to Hammarsten, constitutes 4.516 per cent. of the blood serum. It is almost constantly present in urine which contains any variety of albumen. Although a less diffusible body than serum globulin, it is capable of passing through membrane.

II. *Serum Globulin or Paraglobulin*, the globulin of the blood serum, of which it constitutes 3.103 per cent. It is met with in almost all albuminous urines, its proportion to the serum albumen varying in different instances.

III. *Peptone*, a product of gastric and pancreatic digestion of albuminous substances, also occurring in the process of transformation of tissues and of inflammatory effusions. It is a readily diffusible substance, occasionally met with in the urine in association with or apart from serum albumen.

IV. *Propeptone, or Parapeptone, or Hemialbumose*, a substance or group of substances intermediate between albumen and peptone, constituting a stage or stages of transformation from the one to the other. It is highly diffusible, and is occasionally met with in the urine under conditions corresponding to those under which peptone occurs. This is the peculiar form of albumen which was discovered in the urine by Dr. Bence Jones in a case of osteomalacia.

V. *Acid Albumen, or Syntonin*, one of the derived proteids obtained by the action of acids upon albumen. It is easily produced artificially by the addition of acid to albuminous urine, but may occur naturally in certain cases.

VI. *Alkali Albumen*, another derived proteid, produced by the action of alkalis upon albumen. It is readily produced

artificially, but is also found naturally in the urine.

VII. *Hæmoglobin*, the combination of hæmatin and globulin naturally existing in the red corpuscles of the blood. It sometimes appears in the urine, particularly in cases of hæmaturia and hæmoglobinuria, also in certain septic conditions, and after inhalation of arseniuretted hydrogen, transfusion of blood, and otherwise.

VIII. *Fibrin*, a proteid substance which does not normally exist as such in the blood. It is met with in the urine in hæmaturia, in some cases of chyluria, and in certain varieties of renal casts.

IX. *Mucin*, the chief constituent of mucus, is a derived proteid substance.

It frequently becomes superadded to the urine after secretion, and may be derived from any part of the urinary tract.

X. *Lardacein, Waxy or Amyloid Material*, familiarly known as a pathological substance within the body, is said to be occasionally demonstrable in renal casts.

Of these ten varieties the last four are of little practical importance—mucin alone being indeed worthy of special comment, and that mainly because of the difficulties which its presence raises in regard to the reliability of certain tests for serum albumen.

As to the tests for the albumens, he puts in tabular form the chief tests for the different varieties of albumen, with their actions upon each variety.

TABLE I.—SHOWING TESTS FOR THE CHIEF FORMS OF ALBUMEN.

	<i>Serum Albumen.</i>	<i>Serum Globulin.</i>	<i>Peptones.</i>	<i>Propeptones.</i>	<i>Acid Albumen.</i>	<i>Alkali Albumen.</i>
Heat.						0
Heat with nitric acid.	Opacity.	Opacity.	0	0	0	{ Opacity.
Heat with acetic acid.						
Cold, nitric acid.	Opacity.	Opacity.	0	Opacity dissolved by heat.	Opacity.	Opacity.
Metaphosphoric acid.	Opacity.	Opacity.	Opacity diminished or dissolved by heat.	Opacity diminished or dissolved by heat.	0	Opacity.
Acidulated brine.	Opacity.	Opacity.	Opacity diminished or dissolved by heat.	Opacity diminished or dissolved by heat.	Opacity.	Opacity.
Picric acid.	Opacity.	Opacity.	Opacity dissolved by heat.	Opacity dissolved by heat.	Opacity.	Opacity.
Potassio-mercuric iodide.	Opacity.	Opacity.	Opacity dissolved by heat.	Opacity dissolved by heat.	Opacity.	Opacity.
Potassium ferrocyanide.	Opacity.	Opacity.	0	Opacity dissolved by heat.	Opacity.	Opacity.
Dilution with water.	0	Slight opacity.	0	0	0	0
Magnesium sulphate.	0	Opacity.	0	0	Opacity.	Opacity.
Fehling's solution.	Brownish-red or mauve.	--	Rose pink or purple.	Rose pink or purple.		
Randolph's test.	--	--	Yellow opacity.	Yellow opacity.		

The oldest test for albumen depends upon *its coagulability by heat*. Heat coagulates the serum albumen (opalescence occurring at 60° C., coagulation at 72° to 75°), and also the serum globulin (opalescence occurring at 68° C., coagulation at 75°); has no effect upon the peptones, propeptones, nor upon acid alkali albumen, unless an alkali or acid or has first been added. It, however, produces cloudiness with phosphates, by driving off carbonic acid, which holds them in solution, and the further addition of nitric acid, by redissolving them, clears up the opacity. A preliminary acidulation with acetic or nitric acid prevents this cloudiness, but may convert albumen into acid albumen, and so make the test fail. But on the whole, if cautiously employed, heat will be found a good test. A further security may be obtained by using both acetic acid and a concentrated solution of magnesium sulphate, or of sodic sulphate, or of common salt, for these prevent the undue action of the acid upon the albumen.

The *Cold Nitric Acid Test* ranks next in date of introduction and in general popularity to that by heat. When a layer of nitric acid is brought into contact with a layer of urine, a white coagulum is formed at the line of junction of the fluids. The acid coagulates serum albumen, serum globulin, has no effect upon peptones; gives an opacity with propeptones, which, however, disappears with heat; has no effect upon acid albumen, but gives distinct reaction with alkali albumen. One or two sources of fallacy must be kept in view when one employs this test. It may give a precipitate with urates, with urea, or with resinous substances. Such fallacies may be avoided by the adoption of very simple precautions, which are fully detailed in the books on urinary analysis.

Metaphosphoric Acid is an excellent test for albumen, but a sit is only serviceable when pure, and difficult to keep in that condition, it has not come into general use.

Acidulated Brine is also a test of considerable value, acting upon all varieties of albumen, but it is not likely to become greatly trusted, because of its fre-

quently giving some reactions with normal urine.

Picric Acid is a test which has been brought into use in Great Britain mainly by the recommendation of Dr. George Johnson. It produces an opacity with all the forms of albumen; but while those with serum albumen, serum globulin, acid and alkali albumen persist or become more distinct with heat, those with peptone or propeptone dissolve. It must be remembered, also, that alkaloids, such as quinine, give a cloud with this reagent, but one which rapidly disappears with heating. On the whole, I believe this to be the most reliable and delicate test which we at present possess.

It has been objected to the test, that it precipitates mucin as well as serum albumen, and that this is a source of fallacy, particularly when it is used by the contact method. Careful investigations by Prof. Stewart showed that, while a large number of the specimens gave distinct reactions both with picric and citric acids, there were three which gave an opalescence with picric and not with citric, and seven of those which reacted with citric acid gave no reaction with picric. From these facts he concludes that mucin may be demonstrated by citric acid when no reaction is produced with picric, and that picric may show minute quantities of albumen in urines in which citric acid fails to show mucin.

On the other hand, picric acid often produces an opalescence in urine apparently free from albumen, and Dr. Stevens made a series of careful experiments which seem to indicate that picric acid acts upon mucin, although more slowly and less distinctly than does citric acid. The degree of acidity of the urine is probably an important element in relation to this reaction with picric acid; and Prof. Stewart thinks that where acid is present in quantity the opalescence is distinct; where it is in slight amount, it is comparatively or completely absent.

It is likely that although picric acid

often affects mucin, it does not do so in such a way as to render it unreliable as a delicate test for albumen. Its precipitate with mucin is, even when applied by the contact method, a slight, slowly developed haze. A precipitate indicating albumen is more marked and more quickly produced. A little practice in the use of the test will soon render any one familiar with the degree and rate of formation of the opacity which indicates albumen as distinguished from those which mark the presence of mucin.

Potassio-Mercuric-Iodide, which was first proposed as a test by M. Tanret, corresponds in its action to picric acid, giving opacity with serum albumen, globulin, acid and alkali albumen, and an opacity dissolved by heat with peptone and propeptone. But it will be found to give a reaction with a very large proportion of normal urines, and as the addition of an organic acid—citric or acetic—is required to bring out the reaction, it is clear that mucin must, in many cases, give a degree of opalescence. It may be that other sources of fallacy exist in regard to slighter reactions. Dr. Oliver's method of applying this test greatly reduces the chances of error, but its disadvantages render it an inferior test to the picric acid.

Potassium Ferrocyanide, first suggested by Dr. Pavy, also resembles picric acid in its action, except it does not give any indication with peptones. The objections which induced Prof. Stewart to reject the reagent last described apply to this one also.

Dilution with water is a convenient but not very reliable test of the presence of serum globulin, as it produces a milkiness, that substance being soluble in weak saline solutions, but not in pure water or extremely diluted solutions of salts. It produces no effect upon other forms of albumen.

Magnesium Sulphate is a valuable test for serum globulin, as it produces a milky opacity with that substance, which speedily deposits as a precipitate.

It has no action upon serum albumen, peptone or propeptone, but produces an opacity with acid and alkali albumen. It is best used in saturated solution by the contact method. By its use also, according to methods described in works dealing with the subject of physiological chemistry, the globulin may be separated nearly pure, and its amount determined.

Fehling's Solution, or other alkaline solution of copper, is a most convenient test for peptone and propeptone, giving with these a rose pink or purple color at the point of contact of the test with the supernatant urine, and producing no effect upon the others, with the exception of serum albumen, with which it gives a brownish-red hue.

Randolph's Test for peptone and propeptone, which consists in the addition of one drop of saturated solution of iodide of potassium and then of two drops of Millon's reagent (an acid solution of nitrate of mercury) to a drachm of urine gives a yellow, instead of a red, precipitate when these substances are present; but, as Randolph has pointed out, it gives the same color reaction with bile salts, which are frequently present in considerable amount in the urine. Therefore we cannot esteem it so highly as the copper and alkali test.

The presence of hæmoglobin may be made out by the guaiac reaction or by the spectroscope; the presence of fibrin may be ascertained by its decomposing with effervescence hydrogen peroxide; mucin may be discovered by means of citric or acetic acid; and waxy material may be shown (if it is ever present) by iodine, and sulphuric acid, or by methyl-aniline violet.

Table II. I show you the results of tests as to the relative delicacy of the principal tests for albumen. The first column shows the dilution up to which the action of each reagent remained distinct; The second shows the percentage of albumen, as calculated from the total quantity in the undiluted fluid and the number of dilutions; and the third shows the grains, or parts of a grain, per ounce as calculated from the same data:

TABLE II.—Showing the Comparative Delicacy of Tests for Serum Albumen.

Tests.	Dilutions.	Percentage.	Grains per Ounce.
Boiling	800	0.0006	0.00218
Acidulation with acetic acid, and boiling.....	500	0.0008	0.001811
Cold nitric acid.....	50	0.008	0.01811
Metaphosphoric acid.....	500	0.0008	0.001811
Picric acid.....	1000	0.00015	0.000655
Potassio mercuric iodide. (Test papers).....	500	0.0008	0.001811
Ferrocyanide of potassium.....	500	0.0008	0.001811

The urine contained albumen to the amount of 1.5 grammes per litre, which is equal to 0.15 per cent., or 0.655 of a grain per ounce.

The results show that the *boiling test*, carefully applied, is an excellent one, revealing the presence of so little as 0.00218 of a grain per ounce, and continuing to show up to the 300th dilution of the standard specimen. But heat, with preliminary acidification with a little acetic acid, was still more delicate, showing 0.001311 of a grain per ounce, and giving a perceptible haziness up to 500 dilutions.

The *Cold Nitric Acid Test* falls far short of this in delicacy, for it does not give a distinct reaction beyond the 50th dilution, and therefore shows only with 0.01311 of a grain per ounce. It is true that if the specimen is allowed to stand, the reaction may gradually manifest itself, with minute traces of albumen; but this is inconvenient, and for practical use tests are to be estimated in proportion to their rapidity of action.

Metaphosphoric Acid gave the same results as heating after acidulation with acetic acid, viz., showing till the 500th dilution of the standard urine, and 0.001311 of a grain per ounce.

Picric Acid proved the most delicate test, giving a faint but perceptible reaction up to the 1000th dilution of the standard specimen, which is equal to 0.00015 per cent., or 0.000655 of a grain per ounce.

The *Potassio-mercuric Iodide* and the *Ferrocyanide of Potassium Tests* gave the same results as metaphosphoric acid, showing albumen up to the 500th dilu-

tion of the standard specimen, equal to 0.0001311 of a grain per ounce.

From these and other observations Prof. Stewart concludes that picric acid is the most delicate of all the reagents which we possess for albumen, and that next to it rank the potassio-mercuric iodide, the heating after acidulation with acetic acid, the ferrocyanide of potassium, and the metaphosphoric acid. Boiling and adding nitric acid is less delicate, and still less so is the cold nitric acid test.

But delicacy is not the only quality required of a test. Indeed, a test may be too delicate for practical purposes. And again tests otherwise suitable may be practically inconvenient. Nitric acid is difficult to carry about, and picric acid presents a similar disadvantage, although in a minor degree. The test pellets devised by Dr. Pavy, of London, and the test papers of Dr. Oliver, of Harrogate, are extremely convenient, being easily carried about, and very delicate. But it may be held that they are too delicate, for few urines fail to show some reaction with them. Indeed, many of them show some reaction with practically normal urines. The smallest quantity of mucin may suffice to produce the reaction, or a quite infinitesimal trace of albumen proper. The tests must be used with discrimination, and too much importance must not be attached to their fainter indications. Albuminuria is rarely a serious condition unless it is sufficiently pronounced to be made out by the cold nitric acid test.

As to the quantitative analysis of albuminous urine, Prof. Stewart approves most highly of the coagulating, drying and weighing process. A less laborious process is that known as Esbach's Method. This plan requires certain special tubes, graduated so as to show the height to which the urine to be tested, and that to which the reagent (a solution of picric and citric acids) should reach, also the number or proportion of grammes per litre. The urine is filled up to the level indicated by the letter U, then the test fluid to the line marked R, and the fluids having been thoroughly mixed, are set aside to stand for twenty-four hours.

At the end of that time the level reached by the coagulum enables us to read off the grammes per litre. Our observations brought out a result, as is seen in the table, of 2.5 grammes per litre, which is equivalent to 0.25 per cent., or 1.0837 grains per ounce. It thus very closely corresponded to the results obtained by the first method.

Esbach's method brings out results

closely corresponding to those obtained by the elaborate drying and weighing process. As the method is easily worked, as well as so reliable, it is a good one to adopt. Its only disadvantages are that one must wait twenty-four hours before the result can be obtained, and that it does not enable us to measure less than 0.5 grammes per litre.—*Quarterly Compendium of Medical Science.*

ANGINA PECTORIS WITHOUT LESION OF THE CORONARY ARTERIES.

M. BALL reports to the Société des Hôpitaux a case of this kind. The patient was a man 34 years of age, who had previously had three attacks of rheumatism and one of intermittent fever. The attacks of angina began five weeks before death. There was slight aortic insufficiency, persistent and severe headache. The patient was a smoker. The autopsy showed the orifices of the coronary arteries permeable, and even dilated; insufficiency of the aortic opening; dilatation of the aorta, and hypertrophy of the left ventricle, whilst the right appeared dimin-

ished, and, as it were, crushed by the left. M. Ball explained the death by the imperfect action of the right ventricle. The quantity of blood emptied into the right side of the heart by the pulmonary veins being lessened, there was cardiac ischemia and a deficient circulation, not because of any narrowing of the coronary arteries, but despite of their dilatation. Commenting on the case, M. Huchard said he thought it one of tobacco angina, in which the patient died of arterial spasms as described by Cl. Bernard.—*Le Concours Médical, June 4, 1887.*

DYSPEPTIC ORIGIN OF VISUAL TROUBLES.

IN the ophthalmological congress, M. Grandalement, of Lyons, said: "It is often observed that there are intermittent or remittent visual troubles which one can explain neither by the anomalies of refraction, nor by lesions of the media, or of the deep membranes of the eye. It is common in such cases to attribute these in a stupid way to the nerves. But if we scrutinize with attention the entire organism, we shall always find in such cases a defective condition of the digestive functions;—a dyspepsia, perhaps more or less chron-

ic, and sometimes also a fault of nutrition (excess of phosphates, glycosuria, etc.). These functional affections of vision, this kind of neuropathic phenomenon, constitutes one of those numerous sympathetic neuroses caused by a faulty assimilation of the food, and the formation of toxic alkaloids or ptomaines, which result in the most various distant troubles. The visual defects observed most frequently consist in a diffused pain of the globe, radiating toward the temples, the forehead, and even to the scalp. There is hyperæ-

thesia of the retina, with photophobia and photopsia, more or less severe, following the limited exercise of accommodation. Other patients complain of scotomæ, hemianopsia, diplopia, and especially of *mouches volantes*. All of these ocular neuropathies may be cured, or their trouble, at least, greatly ameliorated, by careful attention to dietetics

and hygiene, and by the employment of saline laxatives and alkalies, in moderate doses and for a long time. In the most severe cases, flushing the stomach, rest in bed, or the use of a hypogastric girdle to sustain the dilated stomach and intestines, will produce the best results."—*Le Concours Médical*, May 28, 1887.

RETENTION OF URINE.

DR. John Ashhurst, Jr., Professor of Clinical Surgery in the University of Pennsylvania, in a clinical lecture, says:

I shall take this opportunity of making a few remarks on the subject of retention of urine. Retention must, in the first place, be distinguished from suppression. The latter is a much graver condition, and depends upon some fault in the kidney, either from organic disease or from sympathy with some other portion of the body. As a result the urine is not secreted, and the waste matters remaining in the blood soon give rise to symptoms of uræmia. In retention the urine is secreted but is not passed, and accumulates in the bladder. If there be free secreted of urine, and only retention, the patient may live almost indefinitely, particularly when the retention is of a chronic character, such as we meet with in the case of old persons with enlargement of the prostate. In these cases, retention more or less complete may last for many months. Some years ago a patient presented himself at this hospital, with the statement that his urine was running away all the time. He had been under treatment for paralysis of the bladder. On examination, the bladder was found to be greatly distended, the vesical tumor reaching to the umbilicus. There was a certain amount of dribbling, but the bladder had remained full of urine for at least a

year. The whole trouble was due to enlargement of the prostate.

Retention of urine may be due to several conditions. It may be the result of spasm. If a person is obliged to hold his water for an unusual length of time, it not unfrequently happens that when he attempts to empty the bladder he finds that he is unable to do so on account of spasm at the neck of the organ. Retention may also depend upon certain general conditions of the system: thus, in typhoid fever retention of urine is a common occurrence. There it is due to the fact that the nervous system, being under the influence of the poison of the disease, fails to recognize the necessity of emptying the bladder. The bladder, under these circumstances, may become much distended and great harm result.

Among the conditions that more commonly come under the observation of the surgeon is what has been termed spasmodic stricture, which is a condition very similar to the spasm at the neck of the bladder already referred to. A person becomes chilled from exposure to cold, and when he attempts to pass water finds that he is unable to do so on account of spasm. There is another condition which is termed congestive retention. Under such circumstances there is probably always some organic change, some stricture, which under ordinary circumstances gives no annoyance; but, as a result of some

cause, congestion takes place in the tissues around the stricture, and retention of urine ensues. This appears to have been the condition in the present case. The patient has had a stricture for many years; then, as a result of exposure, there was increased congestion, he was unable to pass his water, and it was found impossible to pass an instrument.

The most important causes of retention of urine are, however, true or organic stricture of the urethra and enlargement of the prostate. It is necessary to distinguish between these, as their treatment differs. Retention from stricture is a more dangerous condition than retention from enlarged prostate. If the patient be a young man, it is probable that the difficulty is not due to enlargement of the prostate, though there may be an acute prostatitis following gonorrhœa which may be accompanied by retention. The ordinary form of prostatic hypertrophy is to be looked for in those past middle life. It rarely occurs before the age of fifty years, while stricture is more common between the ages of twenty and fifty years. The age of the patient may therefore enable the surgeon to form an idea as to the cause of the retention. If the retention be not complete or constant, some information may be obtained by observing how the patient passes water. In stricture, although the urine may be passed in a narrow stream, it is passed with a certain amount of force. The propulsive power of the bladder is not impaired, and the urine may be projected through the stricture even more powerfully than under normal circumstances, in accordance with the law of hydraulics that the force of a stream is increased in proportion to the diminution of the caliber of the tube through which it flows. If there be enlargement of the prostate, the urine will dribble from the end of the urethra instead of being passed in the ordinary parabolic curve. In this condition, the cause of the obstruction involves the propulsive power of the bladder.

The use of an instrument is, of course, the most satisfactory method of determining the cause of the retention. If the instrument be arrested in front of the prostatic portion of the urethra, the obstruction is due to stricture, but if it be stopped in the prostatic portion we know that there is enlargement of the prostate gland. The distance at which the prostate is reached varies in different cases, but the average is six inches. If the obstruction be found at less than six inches from the meatus it is probably due to stricture, but if the distance be more than six inches the prostate gland is probably at fault. As I have already said, it is important to make the distinction between these two conditions, for not only does the treatment vary, but the urgency is also different. If the retention be due to enlargement of the prostate, you may temporize to a certain extent. There is not likely to be such acute distention as will cause rupture of the bladder, and the patient may with safety be allowed to go a certain length of time without active treatment. In stricture, however, the patient is in more imminent danger, and, unless relieved, rupture of the urethra may occur. Rupture of the bladder does not often result from retention due to stricture. If the bladder be distended, and the patient receive a blow over the pubes, rupture may occur, and the urine may escape into the peritoneum, exciting peritonitis, or it may be extravasated into the pelvic cellular tissue. If there be simply distention without violence, it is usually the urethra that gives way. The patient, after a violent straining effort, suddenly feels a sense of relief, the urine passes into the cellular tissue, and after a time gives rise to sloughing and gangrene, requiring free incisions to evacuate the effused fluid.

In retention from enlarged prostate it is usually possible to introduce an instrument without much difficulty, if a proper instrument be employed. The physician is apt to use the catheter found in the pocket-case, which, while

sufficiently long for ordinary use, is not long enough to reach the bladder in many cases of prostatic obstruction. I have been called some distance into the country to empty the bladder in a case of retention from enlarged prostate, where the whole difficulty was due to the fact that the instrument employed had been too short. Sometimes there is enlargement of the prostate without obstruction. This occurs when the third lobe is not involved. In almost all instances, if the catheter be sufficiently long and of the proper curve, the retention can be relieved. A good plan is to have one of these long English catheters kept constantly over-curved. The catheter must not only be long, but it must be more than ordinarily curved. In order always to have one in readiness, it is well to keep the stilette over-curved. When the wire is withdrawn, the instrument will retain sufficient curve to pass the obstruction. Another good plan is to mould the catheter to the desired curve by placing it in hot water, and then fixing it in this position by immersing it in cold water. It will then keep the curve sufficiently long to permit the obstruction to be passed. There are special catheters made for these cases of enlarged prostate. Some are made with a large curve, while others have a short angular beak, as in the Mercier's or elbowed catheter. This instrument is straight for nearly its whole lengths, and then has an acute bend. This is sometimes useful, as the sudden rise of the beak enables it to slip over the obstruction.

If you are unable to introduce an instrument in a case of enlarged prostate, it becomes necessary to resort to some operative procedure. Tunneling the prostate has been recommended. This consists in taking a solid instrument, directing it in what is considered the proper direction, and then forcing it through the prostate gland. This is a dangerous procedure, and apt to be followed by hæmorrhage. If you have to resort to any operation, the best plain

is to tap the bladder. If the prostate be not large this can be done through the rectum, but if the prostate be much increased in size it is safer to tap above the pubis. This may be done very conveniently with the aspirator, but this has the disadvantage that the operation will probably have to be repeated as often as the bladder refills. It sometimes happen, however, that within a few hours after a patient has been relieved he is able to pass his water in the natural way. This also occurs after the use of the catheter, and the patient may go a considerable time without again requiring its aid.

Where the obstruction is due to stricture, and it is found impossible to pass an instrument, the urethra may be opened behind the point of obstruction. In this case I tapped the urethra at the apex of the prostate gland. Stricture, as you know, never involves the prostatic portion of the urethra, but is usually seated at the junction of the bulbous and membranous portions. If, therefore, an opening is made in the urethra at the apex of the prostate gland, you are certain to get behind the stricture. Such an operation is of course not adapted to retention due to enlargement of the prostate, although even there it may be employed to facilitate the introduction of a catheter. In performing the operation, an incision about three-quarters of an inch in length is made in the median line of the perineum, beginning half an inch in front of the anus. The forefinger of the left hand is introduced into the rectum and placed at the apex of the prostate, which can be readily recognized. The knife is then inserted into the incision, with its back towards the anus, and, guided by the finger in the rectum, is pushed onward until its point reaches the apex of the prostate gland. Having reached that point, you cut forward. This opens the urethra, which is at once known by the gush of urine. The knife is then withdrawn and a grooved director passed into the bladder, when, if the opening is not found to be suf-

ficient, it may be cautiously enlarged. An elastic catheter is next introduced upon the director and secured.

The operation was performed in this case five days ago. We shall now remove the tube for the first time, and insert a clean catheter. The urine is beginning to escape by the side of the tube, and in a few days we shall dispense with it entirely. In the course of another week the urethra may be in such a condition as to permit the passage of an instrument, although when the operation was performed this was impossible. If a sound can be passed, we shall be able to cure the stricture by simple dilatation. If we are still unable to pass the stricture, I shall submit to the patient whether he desires an operation for the cure of the stricture, or whether he is satisfied to pass his water through the perineum. Many patients prefer the latter alternative, which is attended with no particular inconvenience. The sphincter power of the bladder is of course preserved, so that there is no incontinence. The only inconvenience is that in urinating the individual must assume a sitting posture. I have had patients who have submitted to an operation for the relief

of the stricture, but, finding a tendency to recontraction requiring the constant introduction of instruments, have preferred to abandon the urethra and pass water through the perineum.

The operation which I have described is adapted to cases of retention of urine due to stricture, and not to those due to any other condition. When the retention is due to enlarged prostate, and a catheter cannot be passed, the bladder must be opened either behind the prostate or above the pubis. For the simpler forms of retention from spasm, it is usually sufficient to put the patient in a warm bath and give an anodyne. If this is not successful, a remedy which was formerly much employed may be tried. This is the tincture of the chloride of iron. This has the effect of relieving spasm, and has been found to be very successful. Where you can do it, however, it is always better to relieve the retention at once by the use of the catheter, a soft instrument being preferred. It is not desirable to have the retention last even a few hours, for there is always a certain amount of damage done to the ureters and kidneys even in this short period.—*Quarterly Compendium of Medical Science.*

THE TREATMENT OF INTRA-PERITONEAL INJURIES.

THIS subject is of especial interest, because of the serious nature and disastrous consequences of wounds of the abdominal walls and viscera, and also on account of the immense progress which has recently been made in the surgical treatment of these injuries. No department of surgery has derived more advantage from that systematic cleanliness which is the basis of our modern system of antiseptics. The old belief in the necessarily fatal character of such injuries, and in the utter futility of operative interference, has given place to a well-grounded hopefulness and a

spirit of surgical enterprise, scientifically bold without being rash, which have been the means of saving many a life that would formerly have been condemned.

The expectant treatment which our predecessors adopted, for want of better methods, is no longer considered justifiable, and no surgeon worthy of the name would now allow a case of supposed visceral injury to develop unequivocal symptoms of traumatic peritonitis without doing his best beforehand to ascertain and remedy the injuries which may have been inflicted.

To one who, like Sir William Mac Cormac, has had great experience on the battle-field, such a subject must naturally be congenial. One-tenth of the fatal cases on the field are due to some form of abdominal injury. Although the hurry and excitement of war do not offer a favorable opportunity for successful surgical intervention, still the frequent occurrence of wounds of this kind, and their extremely fatal nature, cannot but excite the interest and attention of those whose lot it is to witness them. The oration delivered by Sir William MacCormac at the annual *conversazione* of the Medical Society on the subject of abdominal section for the treatment of intra-peritoneal injury, gave him an opportunity of reviewing the progress which has been made, and of summing up the knowledge that has been gained, on this important subject. Most surgeons will probably agree with the orator when he expresses the indebtedness of abdominal surgery to Listerism, and the vast improvement both in methods and results which followed its introduction. Thanks to the confidence which experience of its efficacy has engendered, surgeons are now enabled to deal with these cases with a success that would have seemed incredible to surgeons of pre-Listerian times.

Formerly the practice was to suture the abdominal wound, and hope for the best. If the intestines were wounded, death ensued in a large majority of cases. Now, however, if reasonable grounds exist for suspecting intestinal injury, the surgeon at once cuts down and thoroughly explores the abdominal cavity. If no trace of injury be found, he closes the wound and awaits with confidence the issue of the case. He need not reproach himself for having made a useless incision, the danger of which in itself has been reduced to a minimum. If, on the other hand, an incised, lacerated, or perforated wound of the intestines be discovered, instead of abandoning the case

he stops the bleeding, fixes the cut edges in close and perfect apposition, and, after the usual cleaning of the peritoneum, replaces everything in position. Numerous cases are now on record proving the triumphs which modern surgery has already achieved, and the future looks yet more promising. By careful observation, confirmed if necessary by experiment, the surgeon learns the manner of dealing with the most sensitive and most easily inflamed tissues of the body. Each little step, each little improvement, helps the movement onwards, until the final result excites the wonder and admiration of those who remember the less daring and less successful practice of a not very remote period.

Since the possibility of successful intervention in cases of abdominal injury has been demonstrated, the great difficulty to be overcome has lain in the diagnosis. The symptoms of visceral injury, apart from hæmorrhage, are in many cases so obscure, and even so conspicuous by their absence, that the surgeon must often find himself in a very embarrassing position. To operate on an uncertain diagnosis is to expose the patient to an unnecessary risk, while to leave him until the diagnosis can be relied upon seriously lessens the chance of recovery. On the whole, Sir William MacCormac is of opinion that the former course is less dangerous to the patient than inaction.

Not the least interesting portion of the paper is the history of cases in which tentative operations have been performed for severe injuries involving rupture of one or other of the viscera. Though by no means uniformly successful, they mark the path which is to be followed in treating such cases, and point the way to better results in the future. The great point to bear in mind is the desirability of preserving, or, if necessary, restoring, the continuity of the gut. Not only is the patient spared the inconvenience of an artificial anus, but the risks of extravasation are

in reality less when the cut edges of the gut are properly sutured than in the alternative proceeding.

The subject of the treatment of wounds of the intestines cannot fail to be of interest to surgeons generally. Even in civil life such cases are frequent enough to render a knowledge of the best methods of treatment indispensable.

Moreover, it is in civil life that the surgeon can interfere with the greatest hope of success. The injuries, as a rule, are less extensive, treatment is more readily available, and the conditions under which it is carried out are incomparably more favorable.—*Quarterly Compendium of Medical Science.*

INTERFERENCE WITH LOCOMOTION AS A UTERINE SYMPTOM.

GRAILY HEWITT, M.D., F.R.C.P., of London, says: Considering the very large number of cases in which "inability to walk easily," "pain on walking," or various modifications of the symptom occur, it is remarkable that so few practitioners, comparatively speaking, pay any attention to it, or even treat the symptom seriously. There can be no doubt, however, that patients themselves look upon this symptom as a serious one, and indeed in most cases speak of it, when they are allowed to express their unbiased opinion on the subject, as an inconvenience which most seriously affects their comfort in life, and for relief of which they would be willing to make great sacrifices.

The above is a general statement. Any amount of evidence is obtainable in regard to its accuracy by interrogating patients, which should be done, not by leading questions, but by requesting them to state what are the principal inconveniences of which they complain. This method of inquiry will reveal the fact, that patients attach more importance to this inability for locomotion as interfering with their comfort than almost any other. For this reason, if for no other, this symptom is deserving of particular attention, and its explanation is a matter of great interest.

There is no difference of opinion as to the necessity for rest and the horizontal position in cases where there is

found to be present marked tenderness or signs of inflammatory action in the uterus or its immediate neighborhood, the presence of such inflammatory action being revealed more or less decidedly by the results of a digital examination. It is not necessary to point out in such cases as these that difficulty or pain in locomotion are connected with, and due to, the inflammatory condition of the uterus or structures adjacent. In such cases no one considers it surprising that the patients should prefer to keep quiet, and the medical attendant usually and very properly advises that the horizontal position should be maintained.

There is another class of cases in which the pain on movement is found to be connected with laceration of the cervix and os uteri during some previous labor. These cases present themselves oftener than is generally supposed; the torn surface is continually irritated and stretched when the patient is walking, or standing, eversion of the lining of the cervix occurs, and a chronic source of irritation is set up. It is not infrequent in such cases to find also, from time to time, small localized cellulitic exudations and more or less tenderness to the touch.

The cases I have however more particularly in view, are those in which no particular sign or presence of inflammatory lesion of the body of the uterus or of the cervix and os uteri is detected

on vaginal examination, no tenderness to touch, and an absence indeed of what may be termed spontaneous pain. The characteristic is, that so long as the patient remains quiet, there may be little discomfort; but the upright position, or the act of walking, induces pain or an uncomfortable sensation, which is so decided, that in the end the patient avoids walking as much as possible. Thus originates in not a few cases a chronic invalidism, the starting point of which will, on inquiry, generally be found to have been habitual pain on attempting ordinary exertion.

Patients suffering in the manner now described, and not presenting obvious signs of presence of inflammatory action in the pelvis, are often looked on as fanciful, or hysterical, or disposed to exaggerate their sufferings. No doubt there are differences in regard to the manner in which different individuals bear pain, but the pain nevertheless has to be accounted for, and in the most typical cases it must be remarked, the patient is obviously and strongly desirous of living an active life, and anxiously seeks means to enable her to do so.

There are, it should be here remarked, cases in which general debility, associated with disorder of the heart or lungs, or general nutrition, giving rise to a certain incapacity for locomotion; but in such cases what the patient complains of is prostration after walking, whereas in the cases to which I desire to call attention, the walking power is often really good, but the exercise of that power gives rise to such discomfort internally that it cannot be kept up for long together.

Associated with the presence of pain in one or other groin, or in the back, there is frequently experienced a bearing-down sensation. The most common seat of this pain is in the groin or the pelvis on one side or other behind this spot. Now, the question is, what interpretation is to be placed on the pain arising from locomotion, when not

obviously connected with some inflammatory condition? The answer is that the movement in question is painful because it imparts an unusual amount of movement, or an unusual kind of movement, to the uterus or to certain parts of the uterus. The uterus enjoys naturally a power of motion backwards, forwards, laterally, and upwards or downwards, within certain restricted limits. It enjoys flexibility also within certain limits. Unusual flexibility is not seldom associated with excess in degree of the other movements, as well as with peculiar tendency to lateral movements.

These excessive movements are, or may be, painful and productive of pain. They are liable to be produced by standing or by locomotion. Frequently they are brought about in the first instance by excessive locomotion or analogous causes (straining, over-exertion, etc.), and subsequently the evil state of things thus produced is intensified and temporarily aggravated by even trifling exertion.

The proof that the foregoing is the true explanation is easily obtainable by watching a few cases, and observing the effects produced on the position and shape of the uterus by exertion. Not less useful in obtaining valuable evidence is the analysis of the patient's symptoms, as described by herself, whereby it is made often quite clear how and why it is that the discomfort complained of arises.

In most cases where this kind of pain is experienced, the uterus falls lower than usual in the pelvis, but more generally we find that the body of the uterus is the part which particularly is to be felt lower than usual. In fact, according to my experience, simple descent of the uterus, unattended by marked version or flexion, gives rise to little inconvenience within certain limits. As regards retroflexion, most authorities are content to regard this as a real pathological condition. As regards antelexion, however, which I believe is

responsible for the pain now under discussion, in the large majority of cases, there is less unanimity. In fact, many deny that anteversion and ante flexion are pathological at all. True, slight ante flexion and slight anteversion may be admitted as a definition of the shape and position of the normal uterus, but there are various degrees of this ante-displacement and flexion met with, which as the result of my experience are liable to be attended with grave symptoms. The pain described above as produced by locomotion, is one of the grave symptoms produced by severe anteversion or ante flexion of the uterus. The reason that this has not been generally admitted is, I believe, that sufficient pains have not been taken to differentiate slight normal anteversion and ante flexion with a properly mobile uterus from severe degrees of this kind of displacement and change of shape. The normal ante flexed uterus oscillates within slight range, recovering its position and shape after moderate disturbance. The abnormally flexible uterus gives way to a greater extent, and the extra amount of flexion, as well as descent involved, gives rise to pain. In cases where the uterus has gradually fallen lower and lower it is apt to become fixed, and does not recover its true position after exertion. This constitutes a condition in which fresh exertions occasion pain, owing to the increased pressure downwards, and under these circumstances, the slightest exertion gives rise to discomfort.

"Uterine dyskinesia" is the term which I have employed in describing the symptoms specially defined in the foregoing remarks. It is as common as leucorrhœa, and more common than most other uterine symptoms, and has

a very definite and well-marked place in uterine symptomatology.

One of the most important arguments adduced in reference to "uterine dyskinesia," its nature and explanation, is that whatever tends to preserve the uterus in a state of repose is almost invariably successful in giving the patient relief. In acute cases of flexion, even of the worst kind, great benefit is derived from placing the patient in such a position that the force of gravity no longer acts unfavorably upon the uterus. Thus, in cases of ante flexion the recumbent dorsal position with hips raised is the one to be selected, whereas in cases of retro flexion the very opposite is necessary. Still more marked results follow when steps are taken by internal mechanical treatment, to raise the fundus, whereby the flexion is lessened in a more decided manner. Now, the fact that these beneficial results do follow, and the patients obtain—it may be said almost invariably—relief by these positional or mechanical methods of treatment, constitutes an argument of no little value in favor of the view of the subject which has been above maintained.

In the foregoing observation I have made no attempt to show why it is that excessive movements and change of shape of the uterus therewith associated, give rise to pain during locomotion. I have simply insisted on the fact that difficulty in locomotion in women is so very generally met with in cases where these excessive movements and changes of shape of the uterus exist, that there can be no doubt that there is an intimate relation between them, the latter as cause, the former as the effect. — *Quarterly Compendium of Medical Science.*

THE RHEUMATIC ELEMENT IN CHOREA OF EARLY CHILDHOOD.

DR. Octavius Sturges, of London, says: Chorea and rheumatic arthritis, whether in union or apart, are first discernable at a period of life which though past infancy is yet near enough to that age to retain some of its characteristics. Now, in infancy morbid phenomena are the most generalized, and concern mainly the nervous system, the excitability of whose reflex centers is excessive. At this age impressions of the most various kinds, whether central or peripheral, have a common issue in convulsion—convulsion which if not general is so variously and capriciously bestowed that the part selected for spasm gives but little guide to the source of it. Even when infancy has passed, and convulsion begins to limit its area, there is still a remarkable indifference and changefulness in its modes of display. Thus, with a young child spasm of the larynx will very readily pass to the diaphragm, so that there shall be stridor or laryngismus one day or one hour, and dyspnoea the next. And speaking generally, many central lesions—cerebral hæmorrhage, tumor, embolism—which in after life give definite notice of their seat by means of the particular muscles they affect, are in early childhood so confused together that any attempt at localization would be futile. The nervous function is as yet imperfectly differentiated; it is unable to appreciate various sources and modes of irritation, or to separate them one from the other. And so long as this process of differentiation remains incomplete we should expect (as we find) that those morbid phenomena which, as there is independent reason for believing, have a real kindred—depending, so to say, upon the stimulation of neighboring centers—should for the while be

merged and confused together. But growth and use have a constant tendency to draw them apart. Differentiation becomes more accurate, while at the same time external and accidental circumstances impart their own bias in this direction or in that.

Let me make my meaning plain by an illustration. Take any of the examples that have been already quoted of young children exhibiting side by side chorea and rheumatic arthritis. In these we have a group of symptoms, motor, cardiac, articular, signals in common of some nervous disturbance. Here, no doubt, are the elements out of which in later life we construct two diseases. But at present there are not two, but one. And by their appearance at this exceptionally early period of life they prove a special liability on the part of their subject both to chorea and to rheumatic arthritis. Now, there are in the world choreic inducements, and rheumatic inducements, and there are epochs of life which are favorable now to the development of the one disease, now to the other. And so in life's progress it will depend very much upon accident whether the child supposed shall develop chorea or rheumatism. She is ready for both, yet with a varying preference which is determined mainly by age. But this comparative indifference is of short duration. Let a child be encountered with consequent rheumatism, or a sudden alarm with consequent chorea, and either of these disorders will impress its own likeness and impart a proneness to repetition. But it is not the cause alone that has to be considered, there is the season of life as well. Chorea, for reasons that need not now be discussed, is a child's liability, favoring the female sex. Rheumatism is a young adult liability,

with no marked sex preference except (as has been shown) in early childhood. We see, therefore, in that later period of childhood, when the two diseases have, so to speak, joint reign, the one or the other occurring by preference according as accident has determined the character of the early attacks, while still the liability to suffer in either way is not yet at one end. Up to a certain age fright or nervous excitement may cause chorea in a rheumatic subject, or exposure rheumatism in a choreic subject. But soon this double liability ceases. That time of life comes when the reign of chorea is feeble and nearing its end, while rheumatism takes wider expansion, and becomes endowed with many prominent characteristics which have been hitherto absent. But it is needless to pursue the subject further. My main design, indeed, is not to discuss theories, but to call attention to facts which have only now be-

come known to me. Looking at chorea as a whole, I have always sided with those who maintain that its relationship to rheumatism is often exaggerated, and that the manner of the association in certain instances is far more striking than its frequency upon the whole. That is my contention still; but as I now perceive, it is incomplete. A full examination of the question, from the point of view selected in the present paper, compels the further conclusion that chorea and polyarthritides in their pathogenesis are nearly akin, while at the same time, as I venture to think, it suggests the reason why these two affections, although cradling together, should have but a short-lived intimacy, as well as the nature of the agency which soon begins to relax the bond of union and at length altogether dissolves it.—*Archives of Pediatrics*, May, 1887.

ON MERCURIALISM IN LYING-IN WOMEN UNDERGOING SUBLIMATE IRRIGATION.

DAKIN makes a valuable contribution to the question of mercurialism following the use of corrosive sublimate as an antiseptic. As is now well known, Tarnier, in 1882, was the first to use this drug as an antiseptic in puerperal cases. The general outcome of its use has been a great diminution in the mortality and morbidity of maternities, a result somewhat clouded by occasional cases of poisoning with even fatal results, as many as eight deaths having been reported. The cases known are as follows:

1. *Stadtfeld's Case* One intra uterine injection, 1:1500, five days after labor. Death on eleventh day. Kidney and intestinal changes found.

2. *Somer's Case*. Vaginal, 1:1000.

3. *Winter's Case*. Intra-uterine douche, 1:1000; vaginal afterward of

1:1000. Death on fourth day. Post-mortem, gangrenous colitis and peritoneal exudation.

4. *Vohtz*. Intra-uterine injection, 1:750, after abortion. Death on eleventh day after intestinal and kidney symptoms.

5. *Partridge*. Two intra-uterine injections, 1:2000; dysenteric symptoms and death.

6 and 7. *Thorn*. Intra-uterine douche after missed abortion, 1:1000; vaginal douche, 1:1000 in forceps case. Renal and internal lesions.

8. *Ziegenspeck*. Death on thirteenth day after three injections of 1:5000. No bad symptoms until second intra-uterine douche on eighth day; patient died five days afterward.

9. *Netzel*. Intra-uterine douche, 1:1500, on seventh day; abdominal

pain then complained of; renal symptoms with albumen and lime and lime salts in urine. Death on twenty-second day.

10. *Gustav Braun*. Douche during first stage; episiotomy performed during second stage, and intra-uterine irrigation, 1:1000, after expulsion of placenta. Diarrhœa on third, and collapse on seventh.

11. *Hofmeier*. One douche of 1:1000. Death on sixth day.

In all cases of douching Keller found mercury in urine, and also albumen.

Dakin then gives the results of the use of sublimate irrigation in 170 patients confined in the General Lying-in Hospital, London, under the charge of Dr. William P. Champneys. The sublimate is used as follows: Hands and instruments are disinfected with 1:1000, the vagina is douched after labor with 1:2000, two pints, at a

temperature of 115°-120° F., being used. For the first two days three pints of 1:2000 at 110° F. are employed, and then the strength is reduced to 1:4000. The patient occupies the dorsal posture, and after the douche is finished turns on her hands and knees, to evacuate any residuum.

Symptoms of poisoning usually appeared between the fourth and seventh days, and were usually diarrhœa, with blood and tenesmus, sometimes vomiting, patchy tongue, thirst, and loss of appetite, fetor of breath, salivation, with tenderness of teeth and gums, as well as red line on gums. The urine contained albumen in 11 of the cases.

Details of the one fatal case are given, with examination of kidneys.

He comes to the conclusion that a strength of 1:4000 is sufficient for douching.—*Quarterly Compendium of Medical Science*.

THE THERAPEUTIC USES OF COCAINE.

THE value of coca preparations for internal administration is so positively assured by a large number of definite experiments in different clinics, that the practitioner can no longer refuse to admit the important service to be derived from it when given in response to definite indications. As an analeptic or restorative agent, it has been long known, whilst most recently it has been recognized as an excellent stomachic tonic, and has, for example, been recommended by Professor Pott, of Halle, as a remedy for the enervating diarrhœa of children. He claims the most brilliant results from the use of the alcoholic tincture of coca leaves for this purpose. Of much greater significance, however, seems to be the therapeutic effect of cocaine as an antispasmodic, a fact that has been established by Pott and others in cases of epilepsy, eclampsia, spasm of the glottis, pertussis and

chorea. It therefore seems opportune to add to the results some further observations of the successful application of cocaine in the practice of the writer to cases of whooping cough, neuralgia of the stomach, and bronchial asthma.

1. COCAINE IN CASES OF WHOOPING COUGH.

During the past summer I made the experiment of the application of cocaine in twelve cases of whooping cough, in children from 1 to 7 years of age, that had been sent to the Sanitary Institution of Colberg. At first I tried the commonly recommended practice of touching, several times a day, the posterior wall of the pharynx and the epiglottis with a 10 per cent. solution of the drug. But no good effects at all followed this; indeed, the mechanical irritation of the brush produced, on the contrary, the most violent paroxysms of coughing on the part of the struggling little patients.

I therefore ordered instead a one per cent. solution (gr. iss. to ʒiiss. aquæ amygdal. am.) for internal administration, giving the child, according to its age, gtt. 10-15-20, three to four times daily in a lump of hard sugar, with the object of keeping the cocaine for a longer time in intimate contact with the pharyngeal walls by chewing than by simply swallowing the liquid. On an average, within three days the attacks became much less severe, the nights became more peaceful, the debilitating emesis ceased, and in two to three weeks the persistence of a slight catarrh was all that remained. The children, in the fresh sea-breezes and with a few salt-baths, quickly regained the most perfect health. Although it is well-known that a change of air, especially a stay at the sea-shore, operates most happily in relieving whooping cough, the author emphasizes his conviction that during no previous summer has he seen the acute stage of the malady so quickly and easily passed through as during the last season, when he adopted the use of cocaine as above described.

II. COCAINE IN GASTRIC NEURALGIA.

The author also reports the very favorable action of the internal administration of the hydrochlorate of cocaine in three cases of severe neuralgia of the stomach in young women of 20, 22, and 26 years, in whom there was neither pronounced anæmia, suspicion of gastric ulcer, nor disorder of the genital functions. It was best borne when combined with belladonna in pill form:

℞. Cocain. hydrochlor. .gr. iss.
 Extr. Belladon. gr. viiss.
 Extr. Rh. q. s.

To make 20 pills.

Sig. One pill after meals three times daily.

The first two cases were two sisters of Warschau. They consulted me in August of the previous year because of seizures of violent gastralgia immediately after every surf-bath, although they had suffered from lighter attacks at times before this. Both of the girls, as

I have said, had the appearance of enjoying perfect health; there was no trace of anæmia, and all functions in the best order; palpitation of the stomach showed no sensitive spots. Several days' use of the cocaine pills gave decided relief. The same formula was used later at their home during the winter, with the same happy results.

In the third patient the gastralgia was combined with hiccough that came on during the night and was extremely tormenting. In this case, it is true, I was unable to put aside entirely the suspicion of hysteria, although the lady seemed in every respect to be healthy and strong. Cocaine in this instance produced its anti-spasmodic effects. Two pills were given at night before going to bed, with the immediate result of bringing better sleep. This, with sea-bathing, finally affected a complete cure.

III. COCAINE INHALATION IN BRONCHIAL ASTHMA.

I have only one case of bronchial asthma to report, but that one was very accurately studied by me, and cocaine, by inhalation, was used with the most excellent results. To my knowledge it has not previously been used for these indications in the same form. The patient was a solidly-built woman of fifty years, from the neighborhood of Colberg. In November of the previous year, after a severe cold, she was one night suddenly seized with what seemed from all appearances to be a laryngeal croup. I found her nearly stifling. Breathing was terribly difficult, all the accessory muscles of respiration in extreme activity, the face livid, the extremities covered with cold sweat, the pulse small and excessively rapid. A powerful emetic fortunately succeeded in speedily bringing out of the larynx and trachea a large mass of tough, fibrous membrane, giving her speedy relief. Succeeding this croupous attack followed an obstinate bronchial catarrh, lasting several weeks, resulting in frequent and severe asthmatic seizures. Morphine, internally or subcutaneously,

soon ceased to afford relief, so that I hit upon the happy thought of trying the inhalation of cocaine. I found it, in fact, the best remedy, and I do not hesitate most readily to advise its use in like circumstances, when morphine is contraindicated, or has failed to produce the desired effect.

In my case I allowed the patient to inhale about $\frac{3}{4}$ v. of a one per cent. solution, by means of one of our common inhalation apparatuses, requiring about five minutes' time when the machine is properly in action. This amount was entirely sufficient the first time to cut short a severe attack. Subsequently the patient learned to begin the inhala-

tion at the commencement of the attack, and then ten or twenty inhalations were sufficient to give instantaneous relief.

Besides, it must be remembered that one cannot inhale much more than this amount without superinducing the known effects of the drug, the contraction of the vessels of the mucous membrane, the extreme resultant dryness, and an uncomfortable feeling, ending in producing a sensation of tickling in the throat, whilst at the same time, lips, tongue and tonsils show the greatest paleness and insensibility.—*Dr. Weisenberg, in the Allgem. Med. Cent.-Zeitung.*

THE GRAFTING OF HUMAN BONE.

ON the 25th of November, 1886, a young man, seventeen years of age, had a complicated fracture of the right leg, about its middle, from which escaped a considerable fragment of the superior part. Succeeding this there were severe phlegmonous complications, the fractured extremities necrosed and were eliminated, resulting in a considerable loss of bone. In December, 1886, the fracture had not united, and the bones were from 35 to 40 millimeters (about $1\frac{1}{2}$ inches) apart, with a fibrous cord uniting them. The fibula, which was intact, formed a splint for the tibia, and had prevented a union of the osseous extremities. M. Poncet then tried the experiment of an osseous graft, and executed it in the following manner: From a leg which had just been amputated, on account of traumatism, he took the first phalanx of the great toe, dissected away its cartilaginous surfaces, getting a fragment one inch in length, which he antiseptitized in a tepid solution of corrosive sublimate of one to two thousand. The pseudarthrosis having been exposed, M. Poncet cut away the fibrous bridge, polished the

two bones, and placed the osseous graft in the fibrous tissue so as to bring it in contact with the inferior fragment of the tibia. There was no reunion; careful antiseptic dressing was continued. Sixty-two days after the operation the graft was completely covered with fleshy granulations, except in a space of three to four square centimeters in the middle, where the bone appeared of a pale pink hue. The mobility of the pseudarthrosis persisting, M. Poncet decided to make a resection of the osseous suture. In performing this operation he removed the graft from the attached portions of the bone, and observed the following important facts: The graft was intimately united to the tibia at one of its extremities by a somewhat dense, tough, fibrous non-osseous tissue. Its entire periphery was covered by the fibrous tissue and a layer of more and more dense granulations. The bone itself was perfectly vascular and alive, eroded at some points by the granulations heaped against the surface. This result shows that legitimate hopes may be built upon this method.—*Le Concours Medical.*

ON THE ACTION OF HYDROCHLORATE OF HYOSCINE.

UNDER the direction of Kobert, Sohrt has made a series of experiments on the physiological action and therapeutic use of hyoscine, the results of which are published in the above paper. The conclusions arrived at by Wood, as to the manner in which hyoscine influences the various organs, are to a large extent confirmed, but on some points the views of the American and German observers are not in accord.

In healthy men, the injection of one-seventieth of a grain gave rise, according to the latter, to disturbances of co-ordination and some muscular weakness; the head felt heavy, sank on the shoulder, and could only be lifted up with difficulty; the limbs likewise felt heavy, and the upper eyelid could hardly be raised; there was a sense of fullness of the head, the pupils were dilated, and a tendency to sleep was noticed in every case; the throat was dry. The hallucinations, delirium, nausea and trembling which have been described by Wood and other observers as following the administration of the hydrobromate and hydriodate of hyoscine, were not observed by Sohrt and Kobert.

Hyoscine, according to Kobert, even in large doses, is well borne by some of the lower animals; a cat recovered after nine grains, and a small rabbit was unaffected by three grains. After large doses it is excreted unchanged by the kidneys. It influences but little the cerebral functions of the lower animals, but has a markedly calming effect on man when the brain is excited. The depression of the reflex excitability of the spinal cord, which, according to Wood, was present in lower animals after the administration of the hydrobromate, was not observed in the experiments made by Sohrt.

Claussen, who published his investi-

gations on the action of hyoscine in 1883, stated that this drug stimulates the vagus and decreases the heart's frequency. Wood concluded that it had no influence on the vagus. Kobert, however, is of opinion that it paralyzes the vagus terminations in the lower animals, and probably also in man. In a lunatic with depressed circulation, which he attributed to inhibition exerted by the brain on the heart, he found that hyoscine always improved the pulse. In healthy men, however, increased rapidity of the pulse, which ought to follow vagus paralysis, was not always noticed. It antagonizes the influence of muscarin on the heart. In cold and warm blooded animals it dilates the peripheral vessels, probably by its paralyzing influence on the ganglia contained in their walls. Kobert does not think that it influences the vaso-motor centre, as the experiments of Wood led him to believe. The respiration is unaffected, according to Kobert, while Wood considers that this drug has a depressing influence on the respiratory functions, acting in all probability on the respiratory centres.

Hyoscine certainly diminishes the secretion of saliva, hence the drying of the throat which follows its use. The secretion of perspiration, too, is lessened, and some of Sohrt's patients who tried both hyoscine and atropine to check sweating preferred the former drug.

It is well known that muscarin increases intestinal peristalsis; hyoscine antagonizes the influence, paralyzing therefore the nerve apparatus on which the muscarin acts.

According to Dr. Emmert of Berne, hyoscine acts more energetically and rapidly as a mydriatic than either atropine or duboisin, and is effective even in solution of 1 part to 1000. Kobert, however, states that complete dilatation

of the pupil is only produced by full doses. It acts, he says, by paralyzing the periphery of the oculo-motor nerve. Sohrt found that 1-140 of a grain dilated his pupils without paralyzing accommodation. Sohrt gave subcutaneously from 1-70 to 1-140 of a grain to a number of lunatics suffering from mental excitement and insomnia, who had taken other calmatives in vain. He administered the drug about one hundred times. Sleep was always produced, and no threatening symptoms were noticed.

As a rule, the patients fell asleep in ten to fifteen minutes after the injections, and did not awake for five to eight hours. A little fullness of the head was at times complained of during the morning following an injection. It is specially worthy of remark that the hyoscine produced good results in several cases in which hyoscyamine in full doses have been ineffectual. Kobert is inclined to consider hyoscine beneficial as a sedative in mental diseases only. —*Arch. f. exp. Path. und Pharm.* XXII., Hft. 6.

THE MORBID ANATOMY OF THE FALLOPIAN TUBES.

AN article descriptive of the morbid conditions in twenty-five cases of tubal disease operated upon by Prof. Martin is contributed to the current issue of Virchow's *Archiv* by Dr. E. G. Orthmann. It should be read with interest at this time, when so much is being said regarding the clinical aspect of the chronic inflammatory changes to which the uterine appendages are prone. Dr. Orthmann describes in detail the histological characters of his specimens, and in the first place draws attention to the normal structure of the fallopian tube. The wall of the tube is composed of three layers—the mucous membrane, which, covered with ciliated epithelium, is disposed in longitudinal folds, which towards the free extremity become branched and divided, ultimately forming the so-called fimbriæ; the muscular layer, greatly developed in the uterine segment of the tube, and diminishing in thickness towards the abdominal extremity; and the outermost connective-tissue layer. The morbid conditions described fall under five heads, and each case is related in full. Of *catarrhal salpingitis* there were nine cases, six being unilateral. The disease is not limited to the mucous membrane, nor does the ciliated epithelium at first

suffer, the change commencing with thickening of the mucous membrane, and consequent irregular swelling of its folds. The swollen folds coming into contact, the cells are compressed, degenerate, and disappear. More or less cystic cavities form between the thickened folds of mucous membrane; and blood-vessels in the infiltrated submucosa may rupture, giving rise to hæmorrhage into the cavity of the diseased tube. Such hæmatosalpinx may result from a closure of the fimbriæ. The muscular and fibrous coats of the wall of the tube may also be thickened, often with atrophy of the muscular fibers themselves. In five cases the “ostium abdominale” was occluded, partly by hypertrophy of the mucous folds, partly by adhesive peritonitis. The following varieties of catarrhal salpingitis are enumerated, the term “catarrhal” being obviously used in a wide sense:—(1) Salpingitis cat. simplex or endosalpingitis; (2) *S. diffusa* or interstitialis, which comprises (a) *S. hæmorrhagica* and (b) *S. follicularis*. Of *purulent salpingitis* eight cases are described. In seven of these the most careful examination failed to detect any bacterial organisms—a negative result which suggests either that the organisms were

either remarkably scanty (as usual in chronic suppuration), or else that they could not be manifested by the methods used; reference, however, is made to the discovery by other observers of tubercle bacilli and of gonococci in tubercular and gonorrhœal salpingitis, and Dr. Orthmann himself has quite recently recorded an instance of the last named variety.* In purulent salpingitis only traces of the ciliated epithelium remain where protected by the folds which are now converted into wide septa between cavities filled with pus; whilst the mucous membrane is more or less replaced by the granulation cells of the inflammatory process. In places the muscular coat may be laid bare by the destructive process. This coat may also be thickened by infiltration of round cells, and the vessels will be increased. In six cases the ostium abdominale was occluded, and of the others one had a fistulous communication with an ovarian abscess. There were two cases of *hæmatosalpinx*, in one of which there was atresia of the ostium abdominale, the mucous folds were stretched, and the walls somewhat atrophied. In the other case the tube was occluded by a kink. Four cases of *hydrosalpinx* are described, three of which were unilateral. In all the superficial epithelium was not much altered; in one case the mucous folds were hypertrophied, but in the rest they were dwindled, and the muscular coat was also atrophied. Lastly, there were two cases of *pyosalpinx*, a condition generally dependent upon atresia of the tube. The walls were thickened and their vascular supply increased. No microbes could be found in the purulent contents. Dr. Orthmann also gives a summary of these cases, from which we gather that in the twenty-five operations there were three deaths—one from collapse and two from peritonitis. Of these cases twenty-one were simple salpingotomies (two deaths). In two instances the patient underwent a sec-

ond laparotomy. In one a right hydro-salpinx was removed seven months after the extirpation of the left appendages; in the other, a large hæmatoma of the right ovary had been removed thirteen years before. The majority of the patients had presented no disturbance of menstruation; in five cases it had been of late somewhat profuse; in five there was severe dysmenorrhœa, and in three menstruation was irregular. The chief and universal symptom was pain in the abdomen and groin, whilst in ten cases there occurred hæmorrhage, and in seven marked uterine discharge. As to the etiology of the cases, ten were ascribed to gonorrhœa, these including six purulent cases, two catarrhal, and the two cases of hydrosalpinx. Four were post-puerperal, but in the remainder no definite cause could be assigned. Two cases were associated with cancer of the uterus, one with myoma, and one with an ovarian cyst. The ovary was found diseased in all but two of the cases. In eight there was chronic ovaritis, two being further complicated with hæmatoma of the ovary and one with hydrops folliculorum. In four other cases there was ovarian hæmatoma, and in three others hydrops folliculorum, without other lesions. There were five cases of ovarian abscess, which in two cases communicated with the tube by small openings, and in one the tube and ovary were conjoined in a common abscess sac. One case of catarrhal salpingitis was associated with an ovarian cyst of the size of the fist. Atrophy of the ovary occurred three times, and parovarian cysts in four cases; in three cases there was hæmatoma between the ligaments, and in one an abscess. We have called attention to this contribution because it seems to us that the pathology of these conditions has yet to be worked out, whilst the material is rapidly accumulating for a thorough study of the subject.

*Vide Berl. Klin. Woch., No. 14, 1887.

PROF. BROWN-SEQUARD ON THE PATHOLOGY OF THE LARYNGEAL VAGUS.

WHATEVER of scientific truth may eventually be established concerning the reflex relationship of the cervical region with the brain and bulb, now set forth by Prof. Brown-Sequard, there can be no question of the remarkable suggestiveness of his conclusions. He showed some years ago that puncture of a certain region of the floor of the fourth ventricle, in close juxtaposition to the vaso-motor and cardiac centers, but not identical with them, has the effect of reducing to the lowest possible ebb the nutritional changes of the organism, so that the blood in the veins runs as red as that in the arteries; for the protoplasmic tissues neither absorb oxygen nor disengage carbonic acid, being, in fact, in a state of suspended animation. But this is not the only cessation of activity that may be brought about as the effect of puncture of the floor of the fourth ventricle. The activity of the cerebral cortex may also be suspended by a similar operation; and actual death may also occur. To sum up in a few words the latest conclusions of the distinguished experimental pathologist, we may state that the skin of the neck covering the larynx has, like stimulation of the larynx, though in a less degree, the power of inhibiting the sensibility of the body, and, further, that mechanical irritation of the larynx, trachea, and perhaps of their subjacent skin, possesses the power of causing death, in the same way as though the bulb and medulla oblongata were irritated. These are extremely important conclusions, and it will be well to examine the evidence on which they are founded. The following is the gist of Prof. Brown-Sequard's communication to the Académie des Sciences.

It has often excited surprise that sui-

cide by cutting the throat should be carried out with such determination, and apparently at the cost of enormous suffering, indicating an almost superhuman courage. The surprise, however, would be considerably lessened, if it were true, as is now asserted, that mechanical irritation of the skin covering the larynx, as well as the larynx itself, causes total analgesia, as seems possible from the remarkable experiments Professor Brown-Sequard made some four years ago. After having made a longitudinal incision through the skin of the middle line or transversely from one side to the other, in the anterior cervical region, the Professor observed in a great number of experiments, especially in dogs and monkeys, that he could lay bare, cut, bruise, galvanize and even burn the various structures in the anterior two-thirds of the neck without causing any great pain, and sometimes without appearing to cause any pain whatever. Such facts—verified hundreds of times during the last five or six years—prove that these structures have the inhibitory property of causing general analgesia, though in a varying degree, according to the precise structure stimulated—viz.: (1) The maximum effect is produced by stimulation of the mucous membrane of the larynx—*i. e.*, of the parts supplied by the terminal ramifications of the superior laryngeal nerves. (2) In a less degree irritation of the trunks of these nerves, and in a still less degree of the trunks of the vagi above the point of emission of the superior laryngeal nerves, causes the same result to appear. (3) A transient analgesia of variable completeness may be caused by ligature of the trachea. (4) The minimum effect is caused by the irritation of the skin cov-

ering the throat, and especially of that over the larynx proper. Although incision of the various structures is the most effective in bringing about the analgesic effects, it is not the only irritation that possesses this property. The trigeminal and other sensory cranial or spinal nerves in their trunks or ramifications do not appear to be endowed with the special power that the vagus nerves and the nerves of the cervical region possess. Surgeons performing tracheotomy during the asphyxia of a patient may be incorrect in supposing that the asphyxia confers immunity from pain, for doubtless the analgesia is partly owing to the very incision of the skin of the front of the neck. Other experiments on animals

seem to show that stimulation of the anterior cervical region, especially the larynx, but also the trachea, and probably the superjacent skin, has the power of stopping the heart, inhibiting the respiration, and suspending consciousness. When Prof. Brown-Sequard has killed dogs by cutting their throats, he has found that nearly always, if not always, death occurred without convulsions, without agony, in a state of perfect syncope, permitting the protoplasmic tissues of the body to preserve for a long time their special properties: the blood running red from the arteries to the veins, and thus presenting an absolute contrast to death due to asphyxia, where the arteries are filled with black blood.—*The London Lancet.*

CASE OF INTESTINAL OBSTRUCTION FROM IMPACTION OF A GALL-STONE IN THE ILEUM.

I WAS called to Mr. C. E., aged fifty-seven, on Sept. 20, 1886, on account of constant sickness followed by faintness. On inquiry I obtained the following history. He had enjoyed fairly good health, but had had an attack of typhoid fever twenty-eight years ago. He was always disposed to be constipated, but by the free use of aperient medicine had kept his bowels acting. He had been a somewhat free liver, and for the last few years had suffered from business anxieties. On July 14th of this year (1886) he was seized with severe vomiting and acute pain in the epigastrium and right hypochondrium, followed by jaundice; the pain was intense for three or four days; the urine high colored. I could obtain no definite information about the motions; he was supposed to have passed a gall-stone, though nothing was ever seen in the motions. In a month's time he returned to business, feeling fairly well, but not losing the sense of uneasiness in the right hypochondrium. His bowels

were more obstinate than ever, acting for the last time on Sept. 13th. On the same day he was seized with frequent vomiting of green bilious matter. On the 17th he consulted a physician in London, who carefully examined him, and finding nothing in the abdomen, attributed the vomiting to gastric catarrh, and advised him to come to Hastings, which he did on the 20th. On that day I found him complaining of great faintness, and of some pain in the stomach, mostly at the epigastrium, but to a less degree in the region of the cæcum and descending colon, with moderate tenderness in these latter regions. He was vomiting frequently, the vomited matter being very green, of an acid, disagreeable, but not at all feculent smell. His bowels had not acted for a week, nor had he passed flatus per anum. No tumor or special resistance could be anywhere felt in the abdomen. There was no abdominal distension, and no visible movement of the coils of intestine. The pulse was large, soft and

quick. He was sent to bed, moderate doses of opium administered, and an injection ordered, which failed of effect, probably from imperfect administration. On Sept. 21st, 22nd and 23d he had an injection each day of three or four pints of soap-and-water, which on each occasion brought away some green, offensive, solid, but not hard, lumps, after which the abdominal tenderness disappeared and the pain and sickness greatly diminished, the character of the vomited matter remaining unchanged. He was taking ten minims each of the solution of morphia and tincture of belladonna every four hours, or oftener if required. His diet consisted of half a pint of milk and a little beef-tea in twenty-four hours; a beef-tea enema was given every four hours. On the 24th he was ordered a five-grain cathartic pill (U.S. Pharm.) at bed-time, followed in the morning by an injection through a long flexible tube. On the 25th two pills of the same were given, also followed by an injection, which brought away motions of the same character as before. The vomiting varied from once to three times in the twenty-four hours, but was becoming more distinctly unpleasant. Very little pain; no tenderness or distension; no wind passed per anum. On the 26th and 27th the injections were repeated, but no action followed, and on the evening of the latter day the vomiting was distinctly feculent. There was no distension of the abdomen. On the 28th Dr. Arthur Gamgee saw him with me, and suggested the employment of electricity, Chloroform was given, and a current from a large primary coil was used, being passed from one side of the abdomen to the other, and afterwards through the rectum, but although violent action of the abdominal muscles was produced, no other effect resulted. Nothing definite could be felt in the abdomen under chloroform, but Dr. Gamgee thought that he felt greater resistance in the region of the ascending colon.

The intestinal obstruction had now

been complete for sixteen days. Some fecal matter had been brought away by the injections, but this evidently came from below the obstruction. No flatus had been passed since September 13th, when the symptoms of obstruction set in. After careful consideration of the symptoms I now came to the conclusion that the case was one of impacted gall-stone in the ileum, and that there was little or no hope of relief except by operation. I was led to this diagnosis by the following points. The invasion was sufficiently sudden to bring it within the class of acute obstructions, and there was a total absence of distension of the abdomen. I therefore excluded all diseases of the great intestine, including volvulus. At the same time, the onset was not sufficiently sudden for an internal strangulation or twist of the small intestine. Moreover, there was a total absence of collapse, the vomiting had never been severe, it was not stercoraceous until the fourteenth day, and the pain was far from acute. The absence of blood or mucus in the evacuations brought away by the enemata, the completeness of the obstruction, and the fact that no tumor could be felt, even under chloroform, seem to negative the idea of acute intussusception. It was quite certain that there was no peritonitis, either chronic or acute. All these conditions being excluded, obstruction from a foreign body impacted in the small intestine, either at its narrowest part near the lower end of the ileum, or in some part narrowed by disease, seemed the only probable diagnosis. That the foreign body was a gall-stone I concluded from the history of hepatic colic ten weeks before, accompanied by little, if any, jaundice, and followed by uneasiness in the region below the liver, continuing up to the time of the attack.

On Sept. 29, at 1 P. M., Mr. Marcus Beck saw the case with me, and, agreeing in the diagnosis, proceeded to open the abdomen, assisted by Dr. Gamgee, Mr. Brodribb and myself. Mr. Beck has furnished me with the following ac-

count of the operation. The patient, having been placed on a table, was covered with a mackintosh sheet having an oval opening in the middle (an ovariectomy apron). The skin was then carefully cleaned with a 1 in 20 solution of carbolic acid. Ether having been administered a spray of carbolic acid was turned on. An incision was then made (about three inches in length) in the middle line, the middle of the wound being midway between the umbilicus and the pubes. The abdomen being opened, a coil of distended small intestine showed in the wound. The hand was passed at once into the right iliac fossa, with the intention of feeling for the cæcum, in order to ascertain whether it was distended or empty. Before reaching the cæcum, but close to it, a hard mass was felt in the coil of the small intestine. This was at once drawn up into the wound and out of the abdomen. It was then seen that the gut was completely plugged by a barrel-shaped body of great density. The gut was apparently healthy; its surface was shiny and perfectly free from any sign of inflammation. An attempt was made to push the foreign body forwards, the direction in which it should go being easily recognized by the distended condition of the intestine above it, while below the gut was empty; it would not move with any amount of force which it seemed justifiable to use. It was determined, therefore, to cut it out by a longitudinal incision in the intestine. The opening in the abdomen was carefully plugged with sponges which had been rung out of a warm solution of carbolic acid (1 in 40), and the coil of intestine was laid upon a flat sponge; a small hole was then made in the mesentery close to the gut, immediately above the foreign body; through this a piece of india rubber drainage-tube was passed and drawn sufficiently tight to occlude the gut, and clamped with a pair of *forci-pressure* forceps. In this way the escape of *fæces* from above was effectually prevented. A longitudinal incision was then made at the side

opposite the attachment of the mesentery. It was about one inch and three-quarters in length, and was of sufficient size to allow of the escape of the foreign body without bruising the tissues of the gut. A small quantity of very dark *fæcal* matter escaped, which was immediately received on a sponge. The mucous membrane was intensely injected and terribly swollen. But little blood flowed from the incision. The gut having been cleaned, the edges of the wound were brought together by interrupted Lembert's sutures. Fine common sewing needles were used (No. 7), threaded with fine carbolized silk. The needle was inserted about a quarter of an inch from the edge of the incision, penetrating the serous and muscular coats only, and brought out about one-sixth of an inch from the edge; then inserted on the opposite side about one-sixth of an inch from the edge, and brought out a quarter of an inch. About a dozen stitches were required and were inserted. When all the necessary sutures were inserted they were tied. The closure seemed perfect, the mucous coat being turned in and the serous from each side brought well in contact. The piece of india rubber tube was now removed; it had made rather a deep impression in the gut, showing the swollen condition of the bowel. The impression began to disappear immediately, the circulation being rapidly restored in the pale part. The incision was then minutely examined to see if anything leaked from it, and nothing was detected. The coil of intestine was then carefully cleaned, the sponges plugging the abdominal wound removed, and the gut replaced in the abdomen. During the whole operation no blood or other foreign matter had escaped into the peritoneal cavity. It was not necessary, therefore, to clean out the peritoneum by sponging or washing. The external wound was then closed in the usual way. The anæsthetic was admirably administered by Mr. Brodribb, so that at no time was there the slightest trouble

from any movement on the part of the patient. There was but little shock. The wound was dressed with sal alembroth gauze, covered by a layer of sal alembroth wool. The foreign body was found to be a large gall-stone. It was somewhat the shape of a conical bullet, the advancing end being slightly conical, the opposite end flat. It was marked at its base by a smooth, slightly concave facet, evidently formed by contact with another stone in the gall bladder. The rest of the stone was rough on the surface, and glistening crystals of cholesterine could be seen upon it. This roughness must have considerably impeded its passage down the intestine. It measured $3\frac{7}{8}$ in. in circumference, $1\frac{3}{4}$ in. in length. It weighed almost exactly an ounce. The patient rallied well from the operation. A dose of morphia was administered hypodermically, and at 9 P. M. the pulse was 100, and of good force; there was no pain or sickness, and the patient seemed to be doing well, but on the following morning the pulse had risen to 120, the countenance was anxious, there was slight distension and some tenderness of the abdomen, but no sickness. He died at 3 P. M., exactly twenty-five hours after the operation. No post-mortem examination could be obtained.

In the treatment of this case I was led to go somewhat beyond the orthodox way of feeding in intestinal obstruction by the willingness of the patient to take food, by the fact of its being retained several hours, and from its not, as far as I could see, in the smallest degree promoting vomiting, and perhaps also from having less faith in the value of nutritive enemata than some have. The medical treatment consisted of opium and belladonna—the doses, in consequence of the moderate amount of pain, being comparatively small—enemata, and, when they no longer acted, aperients. I was led to try aperients from the recollection of a case I had some years ago, when the combined use of aperients and enemata resulted in the passing, after ten days' absolute constipation, of a stone so large that its passage through the anus caused great suffering.

The following points seem worthy of

further consideration in this case: 1. What was the cause of death? Unfortunately this question must remain doubtful. He did not die from shock, for he rallied well from the operation. Every precaution was taken to ensure cleanliness, no carbolic lotion except that upon the hands entered the abdominal cavity, the stitches seemed efficiently to close the gut, well carbolized silk was used, and yet from the period of death it seemed most probable that peritonitis was the cause. The gut, though not actually inflamed at the time of operation, was much congested and swollen. Most probably inflammation developed in the damaged gut after the operation, and in the weak state of the patient proved rapidly fatal. 2. When was the stone impacted? This could not be accurately ascertained. From the size of the gut and the situation in the abdomen it was probably in the lower part of the ileum, not far from its end. That it was the ileum is certain from the absence of the *valvulæ conniventes* in the part opened. 3. Was the operation necessary, or would it have been safer, having made the diagnosis, to trust to nature? This question is extremely difficult to answer. I find in the Index Catalogue of the library of the Surgeon-general, U. S. A., references to thirty-nine cases of impacted gall-stone. Of these I have been able, with the limited time at my command, to refer to only fourteen. Among them, I find, is a stone measuring $3\frac{1}{2}$ in. passed safely after twelve days' obstruction. In another case there was a stone of a little over three inches, but there is no evidence that it passed down the small intestine; it probably ulcerated from the gall-bladder into the colon. Fagge also mentions one measuring 11-10 in. in diameter, which passed after seven days' obstruction. On the other hand, I found seven stones, proving fatal, which measured less than that from my patient; the smallest had a transverse circumference of only $2\frac{1}{4}$ in., and yet it blocked the lower end of the jejunum, and caused death after *fæcal vomiting*. It seems, therefore, that although it is possible for a patient to pass stones of this size through the ileo-colic valve, very few succeed in

doing so, and probably the percentage of recovery would be greater if operation were resorted to in every case as soon as the diagnosis is made. Unfortunately, however, the diagnosis is very rarely made at all. In almost all the cases I have met with, their nature was only cleared up at the post mortem examina-

tion. I can find no case but this in which the stone has been removed by operation. The disease is far more common in women than in men. In the fourteen cases I have been able to refer to only two were men.—*Bryan Holme Allen, M. D., in the Lancet.*

CLIMATE AS A THERAPEUTIC AGENT IN PHTHISIS.

I PROPOSE in this paper to consider four questions: 1. Does climate cure phthisis? 2. How does climate cure phthisis? 3. What climates cure phthisis? 4. What cases of phthisis are curable by climate?

1. Does climate cure phthisis? Yes, beyond question. To doubt this fact is to run counter to a vast mass of unsailable evidence and to give way to an unreasoning skepticism. I have met and talked with cured consumptives in many parts of the world—patients in whom the existence of the disease had been diagnosed by competent authorities, and the genuineness of whose recovery was testified by a long life of vigorous activity. These instances of complete recovery are, however, less common than cases of relative recovery, by which I mean those cases in which the morbid process in the lung becomes dormant and the patient lives out his days, but with diminished vitality, and maimed, as it were, for the rest of his life. It is an extremely important question to determine how many of these cases of cured phthisis are contingent upon the patient remaining in the country and climate where the cure was affected—are, in technical language, relative to his environment; and how many are so complete as to permit of a safe return to the unfavorable climatic conditions which prevail at home. Every practitioner who sees much chest disease has had distressing cases of consumptive patients who have gone

abroad and apparently been cured, but who, yielding to that piteous home-sickness which sometimes assails the stoutest heart and disregards the plainest admonitions of prudence, have returned home, and returned to die. I fear that in a large proportion of cases the cure of phthisis is contingent and conditional, and I do not think we can often regard without serious concern the return of a cured consumptive to those climatic conditions which originally produced or predisposed to the disease.

2. How does climate cure phthisis? Not usually by a single or specific quality of the air or by any definite combination of meteorological conditions. The old notion of "healing air"—viz., that the air, by virtue of some inherent virtue, exercised a direct local curative influence upon tubercular deposits—is a delusion. Bournemouth and Arcachon profess to cure phthisis by the balsamic emanations from their pine forests, but if such emanations have any influence (which is quite doubtful), such influence is but a small and unimportant factor in their general climatic effect. The nearest approach to a specific climatic influence upon phthisis is found in the action of the climates of high altitudes, which has been abundantly proved to depend mainly upon the rarefaction of the air. To sum up this branch of the subject, climatic treatment cures phthisis by removing the consumptive from the evil influences of

unfavorable meteorological conditions and of an injurious soil, and by transferring him to the climate where fresh air, sunshine, and an out-door life may be freely enjoyed, and where, in consequence, the processes of respiration, digestion, and sanguification proceed with sufficient energy to combat successfully the hereditary tendency or individual proclivity to pulmonary disease.

3. What climates cure phthisis? There are very many sanatoria which have been *alleged* to cure phthisis, but it is a significant circumstance that, while every year introduces some new claimant to attention, it also witnesses the dropping from the ranks of some discredited impostor. Time was when Montpellier was the reigning favorite. It is now almost forgotten. Pau and Nice have quite out-lived their once universal fame. Jersey, with its capital St. Heliers, once boasted great things, but we now know that its boasting was vain. The above losses of popularity have been amply justified, but other fluctuations of medical opinion and practice have been more arbitrary. The most favored health-resorts of the past generation were Madeira and Egypt. They are both at present under a cloud, but it will probably be a temporary cloud, as, for properly selected cases, these noted and long famous sanatoria have very decided advantages. The chief feature of modern practice is the great and growing popularity of the high altitude stations.

The number of health-resorts for phthisis is so vast that some classification must be attempted, though no satisfactory classification has yet been suggested. In default of better, let us divide sanatoria into three classes:—
(a) The marine resorts. (b) The dry inland resorts. (c) The mountain resorts.

(a) The best marine resort, if I may so express it, is the ocean-going ship; on the high seas the peculiar features of the marine climate are enjoyed

in perfection. Those features are great purity of the air and freedom from all sources of contamination, marked humidity, and very great equability, both as regards temperature and hygrometric condition. The general influence of ocean air is decidedly tonic, and improvement in appetite and gain in weight are almost universal on ship-board. The disadvantages of the sea voyage are—liability to sea-sickness, which is a serious difficulty in only 2 or 3 per cent of cases; the want of proper sleeping-room, and the consequent contamination of the air at night; and the absence of many home comforts. No consumptive should undertake a sea voyage unless he can afford to travel with tolerable comfort, pay for a roomy cabin, and have suitable companionship. The sailing-vessel should in nearly every case be preferred to a steamer, and the voyage to Australia or New Zealand *via* the Cape of Good Hope is the most adapted to the consumptive. The usual time of departure for Australia is September or October, but this is an unfortunate arrangement, as the invalid thus lands at the antipodes at the beginning of summer, the worst and most trying of the Australian seasons. A better plan is to set sail in July or August, so as to reach Australia during the charming and healthful time of spring. Sailing-vessels occupy from seventy to ninety days upon the passage. The sea voyage confers at least temporary benefit upon the great majority of consumptives, except those cases of great debility and prostration which should not be sent to sea. In the course of my four long voyages I have had as fellow-passengers a vast number of consumptives, who, with scarcely an exception, were happy and comfortable at sea, gained in weight, and experienced an amelioration of all their worst symptoms. It is a dictum of most writers upon the climatic treatment of phthisis that hæmorrhagic cases should not be sent to sea. I greatly doubt the accuracy of this view. I have only known two cases

of hæmoptysis occurring at sea, and neither proved serious. I am quite unable to understand any theoretical ground on which hæmorrhage should be apprehended on shipboard. When the sea voyage fails, the causes of failure are often obvious. Excessive debility, rendering the patient unable to accommodate himself to the novel conditions of life at sea, sea-sickness, longing for home, which is apt to be strong amid the solitude of the ocean wastes, an uncomfortable ship, an overcrowded cabin, and an improper dietary—these often retard or prevent the beneficial influence of the sea voyage. There is one important point, of which my experience has afforded me several melancholy instances—viz., the proneness to relapse on reaching land. The patient should be warned to practice great caution as regards diet, exercise, and general habits on landing after a long voyage. Nearest to the climate of ocean comes that of ocean islands, such as Madeira, Teneriffe, the Azores, Nassau in the Bahamas, etc. Cases that have been known to do well on ship-board may be sent to these resorts, with tolerable confidence, the climatic conditions being similar. There is admirable accommodation at Madeira, and many cases do well there; but diarrhœa is so epidemic as to be known as the “island complaint,” and no case of phthisis should be sent there in which intestinal troubles have been much marked. The climate is very soft and soothing, and grateful to those suffering from bronchial or laryngeal complications, but it is deficient in tonic influence, and its effect upon the general course of the disease is decidedly inferior to that of more bracing localities. Patients may be sent there who lack the necessary vitality to enable them to react to tonic climatic conditions. Of the drier and more tonic marine resorts, Algiers, Tangier, and Malaga, are perhaps the best. The reputation of the Riviera is decidedly on the wane. Many seasons are delightful, but often the mistral is exceed-

ingly treacherous, and snow-storms are not unknown. The chief stations in the Riviera are Hyères, Cannes, Nice, Monte Carlo, Mentone, Bordighera, and San Remo. Nice has quite lost its old reputation, owing to the sudden changes to which it is subject. Cannes is a lovely spot, but inferior to Mentone and San Remo for the purposes of the invalid. Where much shelter is a desideratum, Mentone should be preferred. Otherwise, San Remo possesses the best climate in the Riviera. Algiers is a great favorite at present. It possesses a dry, sunny, warm winter climate, with complete immunity from frost and fog. There are very few days on which the invalid cannot enjoy several hours of out-door life, and the proportion of charming weather is far higher than upon the northern shore of the Mediterranean. Consumptives should in no case reside in the town, which is very dusty and a prey to evil odors, but should choose the suburbs, such as Mustafa Inferieur or the Village d'Isly, and, as spring advances, a change inland to the dry and bracing climate of Hammam R'lhra or Milianah may be advantageously adopted. Tangier resembles Algiers in its general climatic features, but the accommodation is inferior, and it is a very dull place. Malaga has a very good climate, but there is nothing to do, and patients soon weary of it. Biarritz is an excellent place in autumn, but too windy for a winter residence. Arcachon suits cases where nervous irritation is marked. As regards the marine resorts in Britian, Ventnor, Bournemouth, and Torquay are the best, and I have given them in what I consider as the probable order of merit. Ventnor is the warmest and driest of these resorts. Bournemouth has more shelter, and suits cases which cannot tolerate the more decided marine flavor of the air at Ventnor. Glengarriff is probably the best winter climate in Ireland. Ros-trevor has some local repute, but it has little to recommend it. There are some excellent marine resorts in Cali-

fornia, of which Santa Barbara is the best known. The Californian coast in its southern parts enjoys a remarkably dry, bright and tonic climate, well adapted for many cases of phthisis. Tasmania has a climate of great salubrity, but there are many very diverse climatic types included within the area of that small island. The west coast is stormy and wet, and wholly unsuitable to the invalid. The southern coast is somewhat too windy. The best regions for the consumptive are the north and northeast shores, which possess one of the brightest, mildest and most genial climates in the world. The coast region of Australia cannot in general be commended, being a sort of battle-ground for the breezes from the sea and the hot blasts from the interior, and the climate is in consequence fickle and stormy. The most favored region in Australia for the consumptive is the interior plain, of which I shall speak presently. The best marine resorts in New Zealand are Napier and Nelson. Speaking generally, the reputation of marine resorts has somewhat waned in proportion as the fame of the dry inland and the mountain sanatoria has increased. No marine resort is, I think, equal to the ocean voyage, where the latter can be enjoyed under the most favorable circumstances.

(*b*) The dry inland resorts. The best of these are Nubia, the interior parts of Algeria, the Orange Free State, and the vast interior plains of Australia, especially the Riverina of New South Wales and the Darling Downs of Queensland. I am inclined to rate very highly this type of climate in the treatment of phthisis. A large proportion of the cases of complete cure which I have known have been effected by a prolonged residence in some dry inland region, the cure, being, without doubt, in nearly every case materially promoted by the adoption of an open-air life, plain diet, and simple manners. Of the four regions mentioned, probably the Orange Free State is the best, as it possesses an advantage over the others in being at a

considerable elevation. But personal considerations will lead in many cases to the selection of Australia, and it is no small advantage to send the consumptive to the land where he will meet his own kith and kin, where the language, food, and manners of the people will be familiar and congenial to him, and where he may possibly find such remunerative employment as may induce him to settle permanently. Speaking broadly, I would send to Australia only those consumptives to whom a dry inland climate would be thought to be beneficial, advising them in all cases to avoid the coast regions, and especially the capital towns, to go inland at once, settle upon some farm or sheep station, and make up their minds to a residence of at least two years. A large proportion of cases would thus be cured. To recommend Australia as a sanatorium for phthisis without keeping these points in view is to invite failure and disappointment.

(*c*) The mountain resorts. These sanatoria have sprung into sudden favor within the last twenty years, and their popularity grows yearly. The chief are Davos, Wiesen, St. Moritz, and the Maloja in the Alps; Colorado Springs and Manitou in the Rocky Mountains; Bogota, Jauja and Huancayo in the Andes. The almost complete immunity from phthisis enjoyed by residents at high altitudes first suggested their adoption. The most important feature in the medical climatology of the mountain sanatoria is the rarefaction of the air, which promotes respiratory activity, the expansion of the chest, and the absorption of morbid deposits. The dryness, the purity of the air, and the freedom from organic dust are all of importance, but subsidiary to the atmospheric rarefaction. These sanatoria fall into two classes—the cold and the warm. In the Alps and Rocky mountains the winter climate is marked by perpetual snow and severe frost. In the equatorial Andes the climate at high altitudes is one of perpetual spring—humid, warm and vernal. The mountain resorts have proved most efficacious in the following cases: delayed recovery from pneumonia with threatening tuberculosis, chronic pleurisy

with much of fibroid change, incipient catarrh of the apex, chronic tubercular phthisis, with good reaction and the retention of fair constitutional vigor, whether cases of primary disease limited in extent, or single cavity cases without tendency to extend. Hæmorrhagic cases do well, although the profession was long inclined to exclude such cases from the mountain treatment, owing to the unfortunate influence which a false analogical reasoning has exercised upon them. The contra-indications against the adoption of this line of treatment are: Weak circulation, which is absolutely prohibitory, senile change, the *eretische constitution*, extreme debility, and marked and progressive emaciation. Moderate pyrexia is not a hindrance, while sweating and fluxive diarrhoea are usually relieved at high altitudes. Where the cold mountain resorts fail the warm may often prove useful.

4. What cases of phthisis are curable by climate? I have hitherto spoken somewhat dogmatically, as the general principles of medical climatology and the general characters of the sanatoria for phthisis admit of very precise statement; but in dealing with this last question—to which I have more than once been obliged to make incidental allusion—I desire to speak with that diffidence which becomes the therapist. In many cases there are few more difficult problems than to determine whether a given case of phthisis will respond to climatic treatment, and what type of climate affords the best hope of success. Speaking generally, only chronic cases with fair reaction are suitable for climatic treatment. If the disease has a well-defined onset, and threatens to run an acute or semi-acute course; if the patient steadily loses ground and shows no gain in weight or other sign of rally under treatment; if the process in the lung is progressive and there are no evidences of repair—in each and all of these cases the interests of the patient will be best served by vetoing climatic treatment. The patient will die soon and die anywhere, and he may as well be allowed to pass his last days amidst the comforts and sympathies of home. Cases marked

by circulatory weakness, with fast, feeble, fluttering pulse, slight cyanosis, and persistent coldness of the extremities, are very unfavorable for climatic treatment, and should on no account be sent to the mountains. Cases in which laryngeal or intestinal ulceration or renal complication have supervened upon the ordinary type of the disease should be allowed to die at home. Cases in which anæmia appears early and is well marked are unlikely to respond to climatic treatment. On the other hand, we see a vast number of cases of phthisis in which the onset is very gradual and the constitutional involvement for a long time slight. Such cases nearly always improve, even in this climate, under a system of high feeding, fresh air life, and cod-liver oil, and I entertain no doubt that a considerable proportion of them may be completely cured by removal to a suitable climate and the adoption of a prudent mode of life. In determining the climate to be chosen, it used to be taught that the condition of the bronchial mucous membrane was the chief guide: that cases with much bronchial catarrh should go to a dry climate, cases with dry irritable mucous membrane to a moist sedative climate, and so on. I greatly doubt the utility of this rule. Phthisis is not bronchitis, and all analogies for its treatment drawn from our knowledge of bronchitis are not merely unfruitful but misleading. In the therapeutics of consumption we have given up directing our medicinal treatment to the bronchial mucous membrane, and I am unable to see why we should still base our climatic treatment on a theory which we thus implicitly acknowledge to be unsound. Hippo, paregoric, and squills have almost disappeared from our treatment of phthisis; and climatic sanatoria, which soothes the patient's cough at the expense of his appetite and strength, must follow them into deserved oblivion. The consumptive does not die of his cough. He dies of progressive wasting. We have thrown aside expectorants and anodynes in favor of good food, exercise, and such aids to nutrition as cod-liver oil, hypophosphites, maltine, etc., and we must, when possible, choose climatic re-

sorts which are tonic and stimulant rather than those that are mainly sedative. The vital point about any climate is, will it promote nutrition? In early uncomplicated cases with vigorous circulation I think the mountain climates offer the best hope. If the circulation be feeble, or if there be much nervous irritation, the choice will lie between the sea voyage and residence in such dry inland resorts as Upper Egypt or the interior plains of Australia. The sea voyage has the great recommendation that it rarely does harm, except in those very advanced cases which are beyond the reach of all treatment. If the patient objects to the mountains and shrinks from the long sea

voyage, I think Algeria or Morocco should be preferred to France or Italy. Let me say, in conclusion, that climatic change is a snare instead of a help, a curse rather than a blessing, if it be regarded as a complete therapeutics in itself, and as enabling the patient to dispense with the usual lines of treatment and his customary precautions. Climate is not a specific. At best it is only a condition of cure, and we may expect it to be effectual only when the patient's food, habits, occupation, and mode of life are wisely regulated, so as to facilitate its beneficent influence.—*James Alexander Lindsay, A. M., M. D., in The Lancet.*

A NEW REMEDY FOR BURNS.

Many remedies have at one time or another been proposed for the surgical condition following the application of excessive heat to the body, and while some of these are of value, still all are more or less unsatisfactory. The alleviation of the pain and suffering attendant upon burns is one of the most important points in the case, toward which the surgeon directs his efforts. The shock from this cause alone, is sufficient oftentimes to produce death, and always is great. Accidentally, I recently discovered a remedy, which is easily applied and exceedingly prompt in its action. I was called in some haste to a little child about three weeks ago, who was badly burned about the hands and face from falling on a hot stove. The burns were deep, the pain excessive, and the shock very considerable. I hastily sent to the drug-store for a mixture of lime-water, olive oil and carbolic acid. While waiting for this, I prepared to give the child a hypodermic injection of morphine, with which to al-

lay the agony, which was so great that convulsions seemed imminent. While I was getting ready to do this, I espied upon the shelf a bottle of *Pinus Canadensis* (colorless), which I had some time before ordered to be diluted as a vaginal wash for the mother. Remembering its wonderful soothing influence in acute inflammations of the vagina, I at once concluded to try it. Taking a corner of a soft handkerchief, I rapidly painted the injured parts, when, like magic, the pain ceased. You can well imagine my surprise and delight at the result. I directed a camel's-hair brush to be purchased, and had the mother make free applications, and the case had no other treatment, save a little iodoform ointment later on. Since this, I have tried it in several cases, both slight and severe, and with the same delightful results. The preparation used was made by the Rio Chemical Co., of St. Louis, Missouri.—*Medical Register.*

BOOKS AND BOOK REVIEWS.

A TEXT-BOOK OF PATHOLOGICAL ANATOMY AND PATHOGENESIS. By ERNST ZIEGLER, Professor of Pathological Anatomy in the University of Tübingen. Translated by DONALD MACALLISTER, M.A., M. D. Three parts complete in one volume. Pp. xxvii. and 1001. NEW YORK: WILLIAM WOOD & CO. CHICAGO: W. T. KEENER. 1887.

This is apparently a reprint of the English edition in three volumes. It is a misfortune that the translator has omitted that part of the original German edition which treats of the pathological anatomy of the Bones, Muscles, Eye, Ear and Genital Organs, for, defend the omission as he may, the translated work remains incomplete and inferior to the original. Of the merit of the treatise it need only be said here that it is the most thoroughly systematic, complete and satisfactory text-book upon the subject in the English language. The idea of combining the three volumes in one is a good one both for convenience and cheapness, but it is a great pity that at the same time clear printing and clear cuts have been sacrificed. The printing is unworthy of the house which sends it out, and most of the cuts are very poorly engraved, two of them, numbers 74 and 80, being almost worthless. E. W.

A LABORATORY MANUAL OF CHEMISTRY, MEDICAL AND PHARMACEUTICAL. By OSCAR OLDBERG, Pharm., D., Professor of Pharmacy and Director of the Pharmaceutical Laboratories in the Illinois College of Pharmacy, Northwestern University, and John H. Long, Sc. D., Professor of Chemistry and Director of the Chemical Laboratories of the Chicago Medical College and the Illinois College of Pharmacy, Northwestern University. With original illustrations. pp. 445. Chicago: W. T. KEENER.

The object of the authors "in preparing this manual was to provide in convenient form a sufficient number of suitable lessons in laboratory work, and at the same time to embody in the book the facts of inorganic chemistry most important to pharmacy and medicine."

Part I. Describes the elementary substances, metallic and non-metallic, used in medicine and pharmacy, with experiments, tests and a list of the preparations of which they form a chief constituent.

Part II. "Synthetical Chemistry," describes inorganic compounds and compounds prepared with organic acids. The specific gravity, solubili-

ty and other ordinary chemical facts about these substances are given, and the method of preparation of the most of those that can be made in an ordinary chemical laboratory. In many cases the methods directed by several different pharmacopœias are given with criticisms as to their relative advantages.

Part III. "Analytical Chemistry," describes methods of qualitative analysis and volumetric analysis with sections on sugar analysis, determination of amounts of alcohol in fermented liquors, determination of diastatic power of malt extract, valuation of jalap, testing of pepsin, testing for some alkaloids as those of chinchona, opium, nuxvomica, etc., and a chapter on urine-analysis.

The book is a laboratory manual and presupposes a considerable knowledge of the subject. Nothing is said of elementary or theoretical chemistry and very little about the numerous "dodges" which constitute so large a part of the manipulative skill necessary to results. But a teacher can explain these things quicker and better than any book. A solitary student, however, would often find himself at a loss in going through the exercises.

Occasionally the details in minor points are singularly redundant. Of iron we are told that "In the laboratory it is employed in stands, tongs, furnaces, oil and sand-baths, etc., on account of its strength and relative cheapness," etc., etc. Surely space might have been spared from this for a fuller description of methods.

The description of the various processes are, however, accurate and for the most part clear. An occasional obscurity detracts more from the symmetry than the usefulness of the book.

The chapter on urine-analysis is excellent. It does not contain many methods or those which, even if followed with great labor, would be of doubtful value; the best of the well tried ones are given; more would be an encumbrance to the student, or even to the practitioner, unless under exceptional circumstances.

The text is very free from printer's errors, a mark of great care in a book of this kind.

The cuts illustrate their subjects, though some might miss something in execution.

The plates of urine sediments cover most of the common forms, though room could have been spared for more, and all the possibilities of drawing, and especially of printing, were not exhausted in their production.

On the whole, the book is an excellent one and most of its faults will probably be removed in a second edition.

LESTER CURTIS.

ON THE PATHOLOGY AND TREATMENT OF GONORRHOEA AND SPERMATORRHOEA. By J. L. MILTON, Senior Surgeon to St. John's Hospital for Diseases of the Skin, London. New York: WILLIAM WOOD & Co. 1887.

Mr. Milton has written a book, intended, so the preface informs us, as "one of reference for the busy practitioner."

Mr. Milton is an Englishman. He is pugilistic. His writing smacks of the same pugnacity that characterizes some of the prose works of his great namesake, the author of "Paradise Lost."

We imagine him detecting poor M. Chaballier in some error. He rubs his hands gleefully together, and calling on the "busy practitioners" to form a ring, says: "Now, gentlemen, though you are very busy and have come to consult me for another purpose, please pause a moment and see me polish off this insignificant Frenchman, who has attempted to tell what he knows about the history of gonorrhœa. See the foolishness of such a statement of this; the imbecility made manifest by this utterance; could any one with reason, with brains, have written this?" And so poor M. Chaballier leaves the ring with the black eye and bloody nose that Mr. Milton promised to give him.

Then the busy practitioners, hungry for information, crowd around Mr. Milton and ask him, as a man of learning and of high standing, to give them his opinion upon the evil effects of gonorrhœa, or upon his use of injections in the treatment of the disease. "That reminds me, gentlemen," he replies, "did you ever hear such nonsense as was uttered by Dr. Noeggerath, of New York? I have never seen his article upon the consequences of gonorrhœa, but I read a review of it once. If you will wait for a few moments until I show you how I can tear that article of Dr. Noeggerath's—well, ahem! I suppose I should say the review of the article, for, as I said, I have never seen the original—to pieces, I will gladly give you the result of my experience in treatment, etc." And there Dr. Noeggerath's article is torn to shreds. And so on through the book.

And Mr. Milton is not afraid. Such men as Hunter, Sydenham, Trousseau, Cooper and Gross, have to take their share of the blows so freely given by this energetic and excitable Englishman. And many of the blows are fairly dealt. But the busy practitioner is supposed to consult Mr. Milton, not to witness his display of

skill in demolishing theories and ideas, many of them dead and buried years ago, but to get Mr. Milton's own ideas; for every one knows that the opinion of a man of such wide experience and careful observation must be valuable. And if the practitioner has the time to read much that is not of practical value to him, he will find much that is of the greatest value. Moreover, Mr. Milton is always interesting. His literary style, especially in the line of sarcasm, is something not possessed by many medical writers.

Were Mr. Milton's chapter on spermatorrhœa let loose upon the general public, we fear it would cause consternation and fill the physicians' offices with anxious patients, if the laity suspected that a man of large experience and high standing in the profession held that every nocturnal emission was unnatural. A boy or man having more than one such emission a month should be treated. These views are at variance with those of one of our leading Chicago physicians, who being consulted by a young man for monthly nocturnal emissions startled him by exclaiming—"Great Heavens! only once a month! I'll try to give you something to make you have them once in two weeks anyhow" "Emissions are invariably more or less injurious." "The disease (spermatorrhœa) yearly reduces hundreds if not thousands to impotence and all its attendant ills, hypochondria, weariness of life, insanity and so on."

"I have passed the bougie hundreds of times for spermatorrhœa."

"The name (spermatorrhœa) has been objected to, and we have been told that the term ought to be applied to cases in which the semen trickles away insensibly from the urethra—a disease so rare that I have never seen a case, and strongly doubt the existence of it; to which the term spermatorrhœa is not a whit more suited than it is to emissions."

These are not quotations from quack's pamphlet, but from the volume on "Pathology and Treatment of Spermatorrhœa," by J. L. Milton, Senior Surgeon to St. John's Hospital for Disease of Skin, London.

WHAT TO DO IN CASES OF POISONING.

By William Murrell, M. D., F. R. C. P. First American from the fifth English Edition. Edited by FRANK WOODBURY, M. D. PHILADELPHIA: THE MEDICAL REGISTER COMPANY. 1887.

This edition contains one hundred and fifty-eight pages. The author says that if there were fewer poisons the treatise would be smaller. The arrangement is into two general divisions, viz: "Introduction" which treats of the subject in a

general way, and "The Poisons in Alphabetical Order," which treats of each in order under the topics, *How Taken, Symptoms, Fatal Dose, Treatment*. Both the arrangement and general treatment of the subjects leave nothing to be desired. In respect to the desirability of having this or some other equally good book upon the subject, the author's remarks about the stomach pump may be quoted. "Every doctor should have a stomach pump or an efficient substitute. It may not be wanted for years, but it may be wanted tomorrow, and a life, or many lives, may depend upon its being in working order." E. W.

THE NURSING AND CARE OF THE NERVOUS AND THE INSANE. By CHARLES K. MILLS, M. D. 12mo., pp. 147. PHILADELPHIA: J. B. LIPPINCOTT COMPANY. 1887. CHICAGO: W. T. KEENER.

This little work forms part of a series of "Practical Lessons in Nursing" now being issued by the Lippincott Company.

The first chapter deals with the management of the commoner nervous disorders and with the necessary qualifications, of a good nurse for nervous patients. The forms of insensibility are given and so much of their differential diagnosis as may be important for the nurse to know. On page 26 we find the old idea enunciated regarding the necessity of arousing the dormant nervous system, in cases of narcotic poisoning. Fortunately the old barbaric methods are not described. Chapter two relates to massage, muscle-beating, bathing, etc. This is much the most useful part of the work, and the most easily comprehended. Chapter three deals with the application of electricity, forms of batteries, etc. Here there is too much and yet not enough. We fancy the average nurse, who thoroughly masters this part of the work, will consider himself an accomplished electrician, and that too without just reason for the belief. With the varying forms of batteries and electrical appliances it is the duty of the physician, to direct the nurse just how a particular battery is to be used and for how long in each case. As a matter of fact, the electrical treatment ought always to be given by the physician. The final chapter deals with the nursing and care of the insane, and is in the main a good exposition of the written and oral instruction given attendants in our better hospitals for the insane.

The work, as a whole, is not specific enough, nor is it simple in its explanations. Too much knowledge on the part of the reader is assumed. The physician and trained nurse will find many things of value in this work, but the nurse without previous elementary instruction will not find it to be of great value. H. N. M.

OUTLINES FOR THE MANAGEMENT OF DIET. By EDWARD TUNIS BRUEN 12 mo., pp. 138. PHILADELPHIA: J. B. LIPPINCOTT COMPANY. 1887. CHICAGO: W. T. KEENER.

This third volume of the series of "Practical Lessons in Nursing," is a very creditable production. While the work claims to be but an outline of the subject, yet the rules for diet are concisely expressed and in sufficient fullness for all clinical purposes. Not only the nurse, but the physician as well, will find here valuable suggestions regarding diet in most of the cases for which he will be called upon to prescribe.

The work opens with a short description of the physiology of digestion. This is followed by an excellent chapter on the regulation of food in the different periods of life. The beverages as accessories of diet receive consideration, and the views adopted are similar in many respects to those held by Sir William Roberts. Special plans of diet are considered, and are followed by a chapter devoted to the amount of food required by the system, followed by one containing hints on the diet of the corpulent and the thin. The remainder of the work is devoted to the consideration of diet in special diseases.

The work is well arranged, well written, and forms a small but excellent addition to the literature of dietetics. H. N. M.

THE CURABILITY OF INSANITY AND THE INDIVIDUALIZED TREATMENT OF THE INSANE. By JOHN S. BUTLER, M. D. Pp. 59. NEW YORK and LONDON: G. P. PUTNAM'S SONS. CHICAGO: W. T. KEENER. 1887.

In this little volume Dr. Butler makes a strong and earnest plea in favor of the individual, *moral*, treatment of the insane. To secure this there must be more buildings, with fewer occupants to the building, segregation of patients. The man afflicted with acute melancholia must not be subjected to the depressing influences that overcome him, if associated daily with the one demented and beyond cure. The asylum must be, in fact as in name, a refuge, a retreat, a home for the insane, and not a prison where all who enter must lay aside all hope of leaving.

Dr. Butler believes that the present alarming increase in the number of insane is due to neglect of proper methods of prevention. The time to begin to prevent insanity is in childhood. Brains developed at the expense of the body, the pushing of the boy into business and the girl into society, are accountable for many of the wrecks of manhood and womanhood that our asylums can show. Not alone the alienist, but the gynecologist, the oculist, the general practitioner as well, can cite instance after instance where careless or improper

training of the child has led to irreparable trouble and disease.

Could this little essay be placed, where we fear it will not be, in the hands of parents, it would do much good. Yet, though the physician may not need argument to convince him of the strength of Dr. Butler's position, it will amply repay him to read the opinions of a man of wide experience and large heart. One leaves the book with the renewed determination to be more humane and gentle toward the unfortunate, and to do all in one's power to inculcate in the mind of the parent the importance of training children into men and women, well rounded out, physically and morally, as well as mentally and socially.

TRANSACTIONS OF THE PATHOLOGICAL SOCIETY OF PHILADELPHIA. Vol. XII. p. xxiv. and 289. Edited by W. E. HUGHES, M. D. PHILADELPHIA: Printed for the Society by W. J. DORNAN. 1886.

This volume contains the report of the proceedings of the society from September, 1883, to July, 1885. There are also given lists of the officers for each of the years mentioned above, of former presidents of the society and of the present members.

The arrangement is by systems, *e.g.*, The Vascular System, The Organs of Respiration, etc.

Many of the reports are of great interest and importance, but the limits of this notice will not allow special comment. Such publications as a whole are of very great value to the profession, and the society deserves warm commendation for its enterprise and liberality in printing and distributing the reports of its proceedings.

A TREATISE ON DIPHTHERIA, HISTORICALLY AND PRACTICALLY CONSIDERED: Including Croup, Tracheotomy and Intubation. By A. SANNE. Translated, annotated and the Surgical Anatomy added, by HENRY Z. GILL, A. M., M. D., LL. D. Pp. xxx and 656. ST. LOUIS: J. H. CHAMBERS & Co. 1887.

This translation is the work of an enthusiast, and he has evidently labored under the impression that the importance of the subject attaches equally to this particular book. As a whole it is comprehensive and complete. The style of the author, however, is prolix and discursive. The volume might be reduced one-half with advantage. The apology of the translator, in his preface, that he has been too busy to attend to his work is, at least, an unusual one. Despite these unfavorable features, he book is in many respects a good one, and may repay any who have patience enough to read it.

TREATMENT OF DISEASE IN CHILDREN, including the Outlines of Diagnosis and the Chief Pathological Differences between Children and Adults. By ANGEL MONEY, M. D., M. R. C. P. Pp. xiii and 560, 16 mo. PHILADELPHIA: P. BLAKISTON, SON & Co. CHICAGO: W. T. KEENER. 1887.

It is a pleasure to commend such a book as this one is. The style of the author is very readable, and at the same time it is conservative, philosophic and able. He is the assistant physician to the Hospital for Sick Children, Great Ormond street, London, and what he has to say is evidently based upon a wide and ample experience. The chapters on "General Treatment of Disease," "The Principles and Practice of Feeding Infants and Children" are particularly good. That on "Diseases of the Nervous System" contains a discussion of "Raynaud's Disease," "Tetany," and much more not usually included in works upon disease in children. The table of contents and the index and the letterpress are good and the size of the book is very convenient. It can hardly fail to be one of the successful books. E. W.

THE PRACTITIONER'S HAND-BOOK OF TREATMENT: OR THE PRINCIPLES OF THERAPEUTICS. By J. MILNER FOTHERGILL, M. D. Pp. xx and 660, 16mo. Third American from the third English edition. PHILADELPHIA: LEA BROTHERS & COMPANY. 1887. CHICAGO: A. C. MCCLURG & COMPANY.

The author repeats, in this edition, his statement that the book is not intended as a complete treatise on "Practice of Physic," but rather to aid the reader and to "guide him in his therapeutic evolution." The additions to this third edition are two chapters, one on "The Dietary in Acute Disease and Mal-Assimilation," and one on "The Management of Convalescence." For those unfamiliar with the author's writings it is only necessary to say that this book, like his others, while prolix, is very readable and contains much that is of great value. He tries to present his subject from a philosophical standpoint and succeeds admirably. He values accurate diagnosis as highly as any one, but does not deal with that subject in this work. E. W.

THE YEAR-BOOK OF TREATMENT FOR 1886: A Critical Review for Practitioners of Medicine and Surgery. Pp. viii., 304. PHILADELPHIA: LEA BROTHERS & Co. CHICAGO: W. T. KEENER.

This little book is issued annually for the purpose of furnishing a résumé of all the more important advances made in the treatment of disease during the year. Each department of practice is represented by a contribution from an

author of note, who is specially interested in the subject upon which he writes. It should be purchased each year and read by all who are desirous of keeping abreast of the times, for in it will be found much of real value which by reason of the multitude of journals would otherwise have escaped attention.

W. E. C.

LECTURES ON THE DISEASES OF THE NERVOUS SYSTEM. Delivered at the Hospital Salpêtrière. By J. M. CHARCOT, Professor of the Faculty of Medicine of Paris, Physician to the Hospital Salpêtrière, Member of the Institute and of the Academy of Medicine, Honorary President of the Anatomical Society, etc. Volume iii.

The third volume of Professor Charcot's most excellent work on the nervous system is a welcome addition to medical literature. The chief part of this volume is devoted to the study of hysteria in its many forms. Professor Charcot has written his ideas of hysteria in a clear and condensed form. He describes hysterical monoplegia, hystero-traumatic contractures, hysterical coxalgia, hysteria of boys and of men, hysterical mutism, rhythmical chorea of the hysterical, etc.

Considerable space is devoted to the amyotrophic disturbances following articular and chronic rheumatism. Finally, aphasia, in all of its forms, is treated in a clear and concise manner.

A MANUAL OF TREATMENT BY MASSAGE AND METHODICAL MUSCLE EXERCISE. By JOSEPH SCHREIBER, M. D. Translated by WALTER MENDELSON, M. D. Pp. viii and 285, large 16 mo. PHILADELPHIA: LEA BROTHERS & COMPANY. CHICAGO: A. C. McCLURG & COMPANY. 1887.

The author gives Ling, the originator of the so-called "Swedish Movement Cure," great credit for his perseverance in establishing the system of treatment. He is in no sense a blind enthusiast and does not consider treatment by massage and exercise a panacea. He does think, however, that the method is capable of great usefulness when the cases for treatment are intelligently selected. He thinks that only very simple appa-

ratus is necessary, but has profusely illustrated his text with apparatus which those may use who prefer it. The opening chapters treat the subject historically and generally, and others follow devoted to those diseases to which the treatment is adapted. The book, upon the whole, is methodical and thorough, and the style is attractive.

E. W.

ANATOMICAL RESEARCHES IN THE HUMAN RECTUM AND A NEW METHOD OF RECTAL INSPECTION. By WALTER J. OTIS, M. D., of Boston. First part: The Sacculi of the Rectum, with one wood cut in the text and eight plates. [From PROFESSOR BRAUNE'S Department in the Anatomical Institute at Leipzig.] LEIPZIG: VEIT & COMPANY. 1887.

The first part is devoted to a careful description of the gross anatomy of the rectum as observed in studies made upon the cadaver. The writer dwells especially upon the conformation of the inner surface of the rectum as modified by the folds of mucous membrane encroaching upon the lumen of the tube, variously described by different authors. Also, upon the best methods of examining the rectum with the least distortion. For this he advises placing the patient in the lithotomy and knee-chest position and the use of a retractor. The work is being published in German and English in parallel columns.

MATERNITY, INFANCY, CHILDHOOD. Hygiene of Pregnancy: Nursing and Weaning of Infants: The Care of Children in Health and Disease. By JOHN M. KEATING, M. D. Pp. 221, 12 mo. PHILADELPHIA: J. B. LIPPINCOTT & COMPANY, 1887, CHICAGO: W. T. KEENER.

This is one of the four books published by the same company in similar style, as a "Series" on "Practical Lessons in Nursing." The preface states that "this little work is intended for mothers and for those who have undertaken the care of infants and children in health and sickness." Probably no book on such a subject could be perfect. This one is at least very good and can be confidently recommended by physicians to those for whom it is intended.

E. W.

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No. 3.

THE LATER PHASES OF MEDICAL EXAMINATIONS FOR LIFE INSURANCE.

READ AT THE ELEVENTH ANNUAL MEETING OF THE AMERICAN ACADEMY OF MEDICINE AT WASHINGTON, D. C., SEPTEMBER 3, 1887, BY C. C. BOMBAUGH, A.M. M.D., BALTIMORE, MARYLAND.

LEAVING out of consideration the groping of the earlier adventurers in the field of life contingencies, the history of American life insurance transactions dates back only forty-four years. Of this comparatively brief space, the first half was a period of inactivity; the remaining half has been signalized by a movement whose development, expansion and results are unparalleled in the annals of financial enterprise. In spite of the drawbacks of a protracted monetary panic, the discouragements of incompetent and fraudulent management, and the antagonism of spurious and counterfeit forms of insurance, twenty-six leading American companies have, within the past twenty years, paid obligations to the extent of one thousand millions of dollars; they hold accumulated available funds to the amount of five hundred and sixty millions of dollars; and they have incurred steadily maturing liabilities to the amount of two thousand two hundred and fifty millions.

Like the temple of Gaza, the structure of life insurance has two chief supporting pillars. The one is the mathematical, the other is the medical. The one we

leave to the actuary; be it our care to see that no mischievous or antagonistic forces are applied to the other. The worshipers of Dagon who were crushed by the falling roof of the Philistine temple paid with their lives the penalty of the scoffs and insults and mockeries which they heaped upon the Israelitish Hercules. The fall of the temple with which we are so directly concerned, and under whose roof is sheltered the prudential provision and the expectant support of multitudes of American households, would be infinitely more disastrous because it would be a blow to thrift and saving.

During the introductory period of the life business in this country the blanks furnished by the companies for the medical examiners were characterized by simplicity and conciseness. These simple forms, with occasional additions in the way of greater breadth or comprehensiveness in the grouping or classification of the questions, were retained during a considerable portion of the high pressure period. Anxiety to build up the business and the sharp stimulus of competition moderated the rigidity of

medical scrutiny. Of course, the range of disqualification was as clearly defined and rational grounds of rejection were as restraining and controlling as they are to-day. The approval by the executive management of mild measures in the medical department did not imply neglect of the safeguards. Moreover, the absence of cast-iron inflexibility in medical selection was counter-balanced by the stringent restrictions of the contract, voiding the policy in case of misrepresentation, concealment or suppression of facts material to the risk, suicide whether sane or insane, duelling, death by the hand of justice, extra-hazardous occupation, intemperate habits, and travel or residence in unhealthy climates.

These stipulations led to frequent misunderstanding, disappointment and litigation. It was perceived that the contract was a one-sided covenant, that its conditions were oppressive, that within its framework were means and appliances of invalidation, and that technical pleas in avoidance of settlement of claims were sustained by rulings of the courts. Thoughtful men became impatient over repeated contests on the part of litigious managers, and declined to enter into agreements which involved hardships never contemplated. They did not choose to leave to their families a legacy of prospective litigation, and the life business suffered accordingly.

Then followed the peace-offering of non-forfeiture, and the still larger concession of incontestability. Under a broader policy, and a more liberal line of action, the business in the hands of irrepensible agents revived. By these signs they were enabled to conquer. Non-forfeiture plans and methods, whether enforced by statute law or voluntarily adopted by the companies, derived their acceptability from their inherent fairness and their manifest equity. Sacrifices from lapse and legal default were exchanged for the recompense of even-handed justice. But the incontestability clause within the last seven or eight years has gone farther. It is not merely just, but generous. It sweeps the old ironclad restrictions off the face of the policy. The introduction of the

feature of indisputability places the policy under a statute of limitations. It is a guarantee of protection against the technicalities with which the old policies were loaded, and the complications with which they were befogged. What is the practical effect of this surrender of the old conservatism, this radical concession which makes inalienable what was formerly held upon uncertain tenure? Obviously, it is encroachment upon the domain of the moral hazard. Whence, then, is to come the balance, the compensation, the counterpoise? The question receives its answer in a requisition upon the medical department of the service to give increased attention to the physical hazard.

The range of investigation, both as to the family record, and the individual history and condition, is largely extended. Simplification gives way to amplification; the more searching questions are reiterated; divisions are subdivided. While some companies, however, even in this process of closer scrutiny, confine inquiry to essentials, others insist upon the temperature as well as the pulse, upon spinal measurements as well as thoracic expansions, upon unvarnished reports of habits as to stimulants and narcotics as well as hereditary transmission, upon urinary tests in all cases instead of limiting analysis to ages over forty, and amount applied for over \$5,000. Others go still farther in widening the scope of the examiner's duty and responsibility. They require him to fill blanks formerly filled by the agent, thereby placing him in a new relation to the company, the agent, and the applicant. He is not merely a sentinel on the watch tower, but he becomes a virtual detective. He puts the applicant on his good behavior as to future disqualification, and extorts from him an agreement, in case of eventual hernia, to wear a suitable truss. His judgment is invoked as to the insurance elements of a risk as well as to the points of medical selection. If the applicant is not up to the gilt-edged standard of acceptability, and under the rules of the company not eligible for ordinary life policies, and only eligible for term policies or short endowments, he becomes the

arbitrator, not only in the measurement of the expectation of life, but, according to his estimate of probability, he determines and adjusts the form of policy. Thus, "from an advisory, he is thrust into an executive office, from a simple refereeship as to the character of a company's risks, he is put forward, in some instances, as one of the corporate representatives in the making of contracts, a duty foreign to his education and usual experience."*

Whatever may be said, one way or another, of this sort of refinement in the gradation of viability, it may be urged in favor of such effort toward precision in medical appraisalment that it is the only present barrier in the way of sweeping exclusion. It provides a ticket of admission to many who would otherwise be stopped at the gateway. It softens much of the rigor and corrects much of the injustice of rejection. The advocates of that rigor, and hence the direct or indirect defenders of the injustice which proceeds from it, ignore the fact that life insurance is, or ought to be, for average lives; that its advantages should be extended in every practicable way, and not coldly refused to all but those within the charmed circle of physical perfection. If average safety is declined, if a fair and reasonable degree of insurability cannot be brought within the requirements, the life insurance system falls short of its mission, and thousands who are entitled to its protection are driven to the temporary care of ephemeral assessment associations. Therefore it is that the gradation referred to does not go far enough. We must look to compliance with the demands of simple justice and common fairness for such modification of the terms of admission as will extend the benefit of insurance to the larger constituency entitled to it. But intrusion upon the strongholds of conservatism does not imply weakening of the safeguards. To maintain the conditions of security, it is only needful to institute trustworthy means and methods of gradation—to make life risks gradable and ratable as other risks are. Establish a scale of deviations from the fixed standard, and

regulate the terms of acceptance accordingly. Let the counterbalance be provided through an equitable increase of premium, or an equitable reduction of dividend; through the accommodating features of term policies, or contraction of the amount of insurance; in brief, through any mode of apportionment or equalization which growth in special knowledge and sagacity may suggest. In the field thus opened, professional skill may find a way to higher function and larger achievement, and professional pride find stronger reinforcement, than in the work of rigorous exclusion.

In this direction will also be found the best offset to facts of experience that are well calculated to tone down professional pride. The most self-opinionated hobby-rider cannot lose sight of the fact that the value of medical selection is limited to a period of less than five years. He cannot forget the

"chances strange,
Disastrous accidents, and change,
That come to all;
Even in the most exalted state,
Relentless sweeps the stroke of fate;
The strongest fall."

He cannot forget how often the athlete, with his massive frame and giant strength and armor plating, defeats his early promise through reckless abuse of his physical gifts, and falls by the wayside at an age when he should rejoice in the ripened fullness of power. He cannot help noting that while robust vigor thus exhausts its nervous energy and drops into a premature grave, the weaklings, whose application for life insurance would be regarded as a farce, cautiously avoid friction and strain and exposure, husband their impoverished vital force with studious economy, and defer the services of the undertaker till long after they pass their three score and ten. He cannot avoid seeing that the ambition to keep the mortality rates of actual experience far below the estimated ratio of the tables is by no means as laudable—so long as the premium rates are not reduced correspondingly—as it would be to approximate more closely the tabular prediction, and thus widen the area of practical beneficence. He sees

* Vice-President John M. Taylor, Conn. Mut. Life.

that the red-tape repressiveness of officialism makes insurance more expensive to the risks which are accepted, because they have to pay more to keep others out than they would lose by admitting them. He cannot escape the lesson taught by the actuary that the law of average is the law of large numbers, and that the larger the number of individual cases, the less will be the fluctuations of mortality. Nor can he forget, even in the atmosphere of bureaucracy, that while the executive officers may be men of cold blood and cast iron, men to whom business is all in all and sentiment is nothing, he himself has been trained in a liberal profession, which, in proportion to its means, devotes more time and energy to philanthropic ends than all other professions combined, and that to the extent to which he allows himself to be an instrumentality in pushing the requirements of acceptability to extremes, he is untrue to the immemorial traditions and precepts of his craft. At the bedside, or at the operating table, he may say with Hamlet, "I must be cruel only to be kind." In dealing with absolute uninsurability, he is cruel only to be just; he is governed by what Burke calls "the cold neutrality of abstract justice." But justice may be left to assert itself and to stand on its own merits. What is attracting increasing attention to the work of the examiners is the *injustice* with which much of that work is chargeable.

This has been particularly noticeable with reference to presumed renal and cardiac disturbances. In case of detection of albumen in the urine, or of a heart murmur, functional or organic, it has heretofore been the usual practice to turn down the application without further inquiry and without regard to true diagnostic significance. The simple revelation of such unfavorable indications sufficed to evoke unfavorable prognosis. They were cautionary signals that betoken danger, and it was not considered necessary to draw lines of nice distinction as to the nature and extent of the impending danger. It was taken for granted that pathological change was in progress, the possibility of an exaggerated physio-

logical condition not being entertained. If there was hesitation or doubt, it was speedily settled by the axiomatic clincher that the company must have the benefit of the doubt. Thousands who were thus rejected years ago are still playing their allotted parts on the great stage of the world's action.

With our improved and constantly improving means of differential diagnosis there is no warrant for attaching disproportionate importance to the appearance of albumen or sugar, or for regarding the presence of either as a fatal symptom. With our advances in medical chemistry, and the corroborative aid of the microscope, it becomes comparatively easy to distinguish the temporary from the permanent forms of albuminuria. Of course it is only by frequent and systematic testing that we determine functional or physiological albuminuria, even in the intermittent or cyclic forms, from the conditions which point to acute or chronic nephritis. But it is due to the candidate for insurance that the analysis be repeated at varying periods and under changing circumstances, until it is decisively shown whether the albumen is transient, or whether there is reason to suspect future mischief. If, at any time, the test tube is fallacious, or its testimony is negative, the microscope will supplement as a corrective. To reject a man for life insurance, and to sentence him to death from Bright's disease on one test tube examination, and without looking for and finding epithelial casts, or other renal derivatives, is absurdly unfair and unreasonable. Let it be remembered, too, that cases of chronic albuminuria have been reported without albuminous urine,* while such constant accompaniments as the typical pallor, and puffiness, the tube casts, progressive emaciation, anasarca, and uræmia were emphasized.

Nor does saccharine urine necessarily imply the approach of fatal glycosuria. Without stopping to consider whether the presence of sugar indicates anything more than a transitory consequence of conditions, physiological or pathological, which have little or no affinity to those

*Journal of the American Medical Association, June 4, 1897.

of diabetes, our examiners have been declining application after application, year after year, on the assumption of the infallibility of the copper test, and paying no attention to the absence of the rest of the clinical group which we associate with diabetes. They have been betrayed by a single misleading observation into summary rejection of intending insurers, and thereby have wrought hardship none the less oppressive because unintentional—hardship which in many cases might have been avoided by greater precaution, by repeated analysis, and by definite decision whether, aside from the presence of glucose, there were other pronounced symptoms.

No sooner was attention drawn to this too frequent rejection in consequence of the adverse result of the employment of Fehling's or Trommer's test, than it became evident that the accuracy of these favorite tests had been overrated. It was discovered that other substances as well as sugar, have the property of reducing the cupric to the cuprous oxide, and that, in proportion to their appearance and interference, the copper test is untrustworthy. Not only does an excess of urates of the protein compounds exhibit a similar property, but several medicinal substances, when taken into the system, notably chloral hydrate, chloroform, turpentine, and benzoic and salicylic acids, will occasion similar reduction if the test is made in the usual manner, by heating the urine.

Then followed the discovery by Dr. Donaldson, of Baltimore, of an unknown substance, the reaction of which, under Fehling's test, had led to the repeated rejection of a man in vigorous health upon the assumption that it was glucose. After exhaustive analyses by Profs. Tyson, Wormley and Marshall, it was found to be an acid new to medical chemistry, and which had never before been detected. Dr. Brune, of Baltimore, also showed that while in the case referred to the copper tests gave reactions similar to sugar, the fermentation test and the polariscope proved the absence of glucose. His investigations showed further that while the positive evidence not only of the copper sulphate, but likewise of the sodic

hydrate test, and perhaps also the picric acid and bismuth subnitrate, is not to be relied upon, we can safely depend upon the polariscope and the yeast test, and a proper interpretation of other recognized tests for glucose. To this list, it may be observed, has recently been added the valuable phenyl-hydrazin chloride of Fischer and Ultzmann. Its success rests upon reactions and methods different from those in use heretofore, and free from the objections to color and reduction tests.

With reference to the habit of giving an unfavorable prognosis in cardiac affections, a very marked change of opinion has been in progress since the important discussion upon chronic valvular disease of the heart, at the last annual meeting of the British Medical Association. Those who took note of the proceedings will remember that the subject was introduced by Sir Andrew Clarke in an elaborate paper, with a tabular report of 684 cases of chronic valvular disease, "the presence of which was not indicated by symptoms, and did not sensibly interfere with health." The eminent gentlemen who participated in the discussion which followed fully agreed upon the following conclusions: that there has been too strong a tendency heretofore to overestimate the importance of cardiac murmurs, and to take too grave and sombre a view of such murmurs, especially when loud and obtrusive; that the time has come when the conditions of valvular disease can be so grouped that the examiner is in position to accurately estimate the degree of damage, and to equitably apportion the extra rating to the extra risk; that mitral lesion give us more hope of amelioration through the adaptive processes of nature than aortic defects; that whatever the valvular lesion, more importance is to be attached to signs of weakness or enlargement of the heart, to displacement, to evidence, of degenerative change in its walls or in the arteries, to obstruction in the circulation, and to liability to rheumatic affections. With regard to disease of the mitral valve, Sir Andrew Clarke presents five propositions: First—that there shall be no degenera-

tion of the heart; second—that the disease shall have existed two years; third—that the ventricles shall be in good order; fourth—that the arteries shall be sound; fifth—that there is no persistent basic nor recurrent hepatic congestion; that colds shall not hang about the patient, and that his general health shall be good; given all these, and the mitral disease will not shorten life.

As to rating up the extra risk to the higher age at which the premium is more nearly adjusted to the point of adequacy, the experience of English offices has been too limited to furnish well defined guidance. The only suggestive results which have been collated and published, thus far, are those of Prof. E. Symos Thompson, who has shown very active interest in this special line of investigation.

Dr. Barlow, of London, in reviewing the interesting observations of Prof. Thompson, says:

“The whole summary of the matter seems to be that the selection and admission of these cases is one of great delicacy, and requires the highest qualifications of experience and ripe, sound judgment on the part of the physician; that though in the hands of a few men of exceptional experience, a few (very few) cases of aortic valvular disease may be admitted at a greatly advanced premium rate, yet that as a general rule for the majority of examiners the safe course will be rejection. But as to mitral disease of some standing, dating from early life, and occurring in otherwise healthy, temperate persons, subject to no laborious exertion or great anxieties, and having no enlargement or displacement of the organ, and no fatty or other degeneration of heart or arteries, an addition varying with circumstances from ten to twenty-five years should be made to the actual age.”

EDITORIAL.

NINTH INTERNATIONAL MEDICAL CONGRESS.

The issue of the present number of the *Journal and Examiner* has been delayed beyond the usual time for its appearance because of our desire to present as full a report of the transactions of the International Medical Congress held in Washington, as might be found to be practicable in so short a time. This we have been enabled to do through the enterprise of the press, medical and secular. Much of the report here given has been obtained through the courtesy of the well-known publishing house of Messrs. William Wood & Company, of New York, from advanced proofs of their publication, the *Medical Record*.

As is now well known, the attendance at the congress was very large, nearly three thousand names having been registered.

The work of the general sessions was of a high order of merit, and there was a noteworthy recognition of the dignity and the importance of the occasion, so that the sessions were characterized by decorum which was befitting the greatness of the occasion. A brief summary of the general addresses delivered is given in our report.

In the sections, the work done manifested in a marked manner the interest

which the medical profession of all countries had taken in this congress. Many, who from various causes had been prevented from being personally in attendance, sent their contributions of valuable papers, and some of the sections had more papers presented to them than could be read and discussed in the time allotted them, although there were two sessions a day in many of the sections. In consequence of this, some papers were read in other sections than those for which they were originally intended. As so often happens in the large assemblings of medical men, valuable papers are only finished on the eve of the convening of the meeting, and are presented at too late a period to be read during the sessions. Such proved to be the case during this congress, and some of them will only appear in the report of the transactions, and abstracts of them can not now be obtained.

Although the congress convened in the capital at an unfavorable season of the year, socially, yet the Committee of Arrangements made commendable effort to have the occasion as pleasant as possible for the visitors from other countries, during their stay in Washington, and, after the adjournment of the congress, special excursions were provided for their enjoyment.

NINTH INTERNATIONAL MEDICAL CONGRESS.

HELD IN WASHINGTON, D. C., SEPTEMBER 5, 6, 7, 8, 9, AND 10, 1887.

[Abstracted chiefly from advance slips supplied by *The Medical Record*, of New York, from its Special Report.]

FIRST DAY.

MONDAY, SEPTEMBER 5TH.

The Congress assembled in Albaugh's Opera House, and was formally opened at 11 A.M. by His Excellency Grover Cleveland, President of the United States, who said: "I feel that the country should be congratulated to-day upon the presence at our capital of so many of our own citizens, and those representing foreign countries who have distinguished themselves in the science of medicine, and are devoted to its further progress. My duty in this connection is a very pleasant and a very brief one. It is simply to declare that the Ninth International Medical Congress is now open for organization and for the transaction of business."

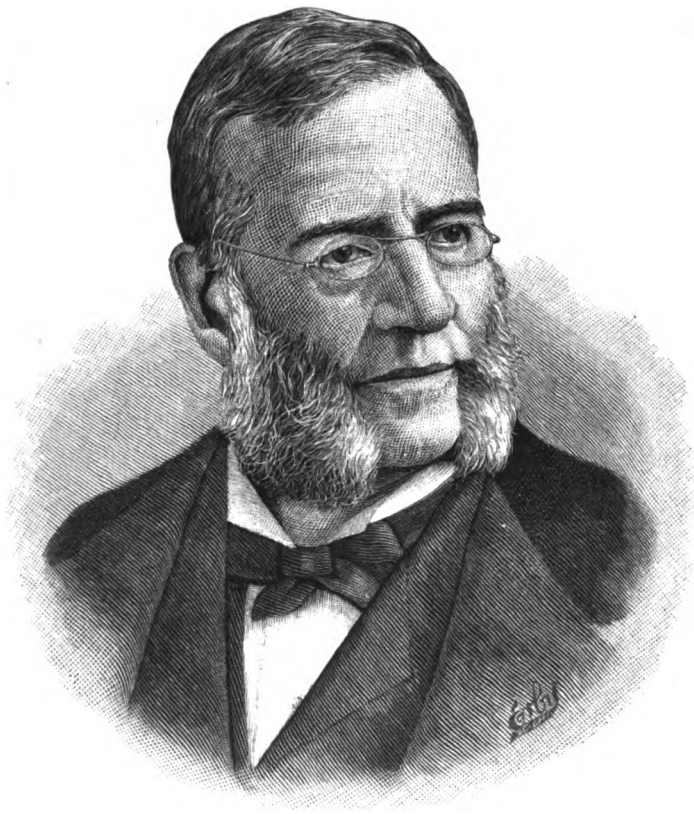
Dr. Henry H. Smith, of Philadelphia, Chairman of the Executive Committee, next named the following

OFFICERS OF THE CONGRESS.

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VICE-PRESIDENTS—J. McCall Anderson, M.D., F.R.C.S., Glasgow, Scotland; Thomas Annandale, M.D., F.R.C.S. (Edinburgh), M.R.C.S. (England), Edinburgh, Scotland; Docteur Dujardin-Beaumetz, Paris, France; Cuthbert Hilton Golding-Bird, M.D., F.R.C.S., London, England; Professor Carl Braun, M.D., Vienna, Austria; William Brodie, M.D., Detroit, Michigan; Jno. Chiene, M.D., F.R.C.S., Edinburgh, Scotland; George Joseph Hamilton Evatt, M.D., L.R.C.S., East Indies; Sir B. Walter Foster, M.D., F.R.C.P., Birmingham, England; Ernest Hart, M.R.C.S., London, England; Johnathan Hutchinson, F.R.C.S., London, England; George Murray Humphrey, M.D., F.R.C.S., Cambridge, England; Sir Thomas Longmore, C.B., F.R.C.S., Netley, England; Frederick B. Jessett, F.R.C.S., London, England; Sir William Gull, M.D., LL.D. (Cantab.), F.R.S., D.C.L. (Oxon.), London, England; William Wirt Dawson, M.D., Cincinnati, Ohio; Thomas Michael Dolan, M.D., F.R.C.S., Halifax, England; Thomas Richard Fraser, M.D., F.R.S., Edinburgh, Scotland; Sir James A. Grant, M.D., Ottawa, Canada; James Andrew S. Grant, M.D., LL.D., Bey, Cairo, Egypt; A.L. Gusserow,

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Austin Flint

FIRST PRESIDENT-ELECT OF THE NINTH INTERNATIONAL
MEDICAL CONGRESS, WASHINGTON.



Nathan S. Davis.

PRESIDENT OF THE NINTH INTERNATIONAL MEDICAL
CONGRESS, WASHINGTON.

Germany; Dr. O. Morisani, Naples, Italy; Dr. Wilhelm Meyer, Copenhagen, Denmark; Jeffrey A. Marston, M.D., M.R.C.S., London, England; Joseph R. Smith, M.D., New York, N.Y.; John Dennis Macdonald, M.D., M.R.C.S., Surrey, England; Dr. William Murrell, London, England; Dr. John Marshall, London, England; Professor C. F. Durante, Rome, Italy; Dr. Theodore Kocher, Berne, Switzerland; Dr. John Tweedy, London, England; Professor Trelat, Paris, France; Dr. J. M. Toner, Washington, D. C.; Dr. Charpentier, Paris, France; Dr. Chervin, Paris, France; Dr. Léon Sable, Paris, France; Dr. Léon Le Fort, Paris, France; Dr. Vallin, Paris, France; Dr. Neudörfer, Vienna, Austria; Dr. Von Coler, Berlin, Prussia; Sir James Arthur Hanbury, M.B., K.C.B., F.R.C.S., London, England; William Alexander Mackinnon, C.B., L.R.C.S., London, England.

SECRETARY GENERAL.—John B. Hamilton, M.D., Washington, D.C.

TREASURER.—E. S. F. Arnold, M.D., M.R.C.S., Newport, Rhode Island.

Chairman of the Finance Committee.—Richard J. Duglison, M.D., Philadelphia, Pennsylvania.

Chairman of the Executive Committee.—Henry H. Smith, M.D., LL.D., Philadelphia, Pennsylvania.

Chairman of the Committee of Arrangements.—A. Y. P. Garnett, M.D., Washington, D. C.

PRESIDENTS OF SECTIONS.

Section I. General Medicine—Abraham B. Arnold, M.D., Baltimore, Maryland.

Section II. General Surgery—William T. Briggs, M.D., Nashville, Tennessee.

Section III. Military and Naval Surgery and Medicine—Henry H. Smith, M.D., LL.D., Philadelphia, Pennsylvania.

Section IV. Obstetrics—De Laskie Miller, M.D., Ph. D., Chicago, Illinois.

Section V. Gynecology—Henry O. Marcy, M.D., Boston, Massachusetts.

Section VI. Therapeutics and Materia Medica—Traill Green, M.D., LL.D., Easton, Pennsylvania.

Section VII.—Anatomy—William H. Pancoast, M.D., Philadelphia, Pennsylvania.

Section VIII. Physiology—John H. Callender, M.D., Nashville, Tennessee.

Section IX. Pathology—Alonzo B. Palmer, M.D., LL.D., Ann Arbor, Michigan.

Section X. Diseases of Children—J. Lewis Smith, M.D., New York, New York.

Section XI. Ophthalmology—Jullan J. Chisolm, M.D., Baltimore, Maryland.

Section XII. Otolology—Samuel J. Jones, M.D., LL.D., Chicago, Illinois.

Section XIII. Laryngology—William H. Daly, M.D., Pittsburg, Pennsylvania.

Section XIV. Dermatology and Syphilography—Andrew R. Robinson, M.D., New York, New York.

Section XV. Public and International Hygiene—Joseph Jones, M.D., New Orleans, Louisiana.

Section XVI. Climatology and Demography—Albert L. Gihon, M.D., U. S. Navy.

Section XVII. Psychological Medicine and Nervous Diseases—Judson B. Andrews, M.D., Buffalo, New York.

Section XVIII. Dental and Oral Surgery—Johathan Taft, M.D., Cincinnati, Ohio.

REPORT OF THE SECRETARY-GENERAL.

Mr. President: According to the precedent set at former sessions of this body, the Secretary-General must make a report of the work performed since the session last preceding, but I will only occupy the time of the Congress for the briefest possible space.

It is now a matter of history that in May, 1884, the American Medical Association met in this capital, and passed a resolution inviting the Congress to honor America by holding its next session in the United States.

At the meeting in Copenhagen, in August, 1884, when the question came up for disposition, Washington was selected. The committee, having borne the invitation and secured its acceptance, returned home, and immediately began the work of organization, and shortly before the meeting of the American Medical Association in New Orleans, in May, 1885, they completed the preliminary organization. But it transpired that this committee were unable to frame an organization satisfactory to the majority of the members of the Association, and, after some discussion, a resolution was adopted which authorized the appointment of additional members of the committee, and, in accordance with our American system of representation, the committee consisted of one member from each State and Territory of the Union, to which was added one representative from each of the three public medical services, and these new members were elected by the State and Territorial delegations. The enlarged committee met in Chicago a few weeks after the New Orleans meeting of the American Medical Association, and several of the members of the first committee were present and acted harmoniously with the committee. In a short time, however, each of the original committee had withdrawn, and the management was

thus deprived of their experienced and valued services. The committee have, therefore, had to contend against more than the ordinary difficulties attending so great an undertaking, and its present success is due entirely to the zeal and energy of its chairman, Professor H. H. Smith, of Philadelphia, and the unflagging interest and industry of the remaining members of the committee.

Dr. A. Y. P. Garnett, of Washington, D. C., Chairman of the Local Committee of Arrangements, then announced the arrangements for the social entertainment of the members of the Congress and their families.

THE ADDRESS OF WELCOME

was delivered by Hon. Thomas F. Bayard, Secretary of State. In the name of his fellow-countrymen he expressed gratification at the visit of the delegates to Washington. The world is becoming acquainted and international intimacy is growing; a spirit of common brotherhood is increasing so that the word "stranger" will soon be obliterated from the vocabulary of civilization. If letters constitute a republic, science is a democracy. In the United States individual enterprise has produced great scientific institutions without the aid or interference of government. The proceedings of the Congress will be watched with interest by the sixty million people of this country.

RESPONSES

were made by the following gentlemen:

Dr. William H. Lleyd, of the Royal Navy; Dr. Léon Le Fort, of France; Dr. P. G. Unna, of Germany; Professor Semmola, of Italy; Dr. Charles Reyher, of Russia.

Professor Lewis A. Sayre, of New York, occupied the chair during the delivery of

THE ADDRESS OF THE PRESIDENT OF THE CONGRESS.

Professor Davis began by paying an eloquent tribute to the memory of Austin Flint, M.D., LL.D., the first President-elect, and continued as follows:

With a full consciousness of my own deficiencies, and still with a heart overflowing with gratitude, I thank you for the honor you have bestowed in selecting me to preside over the deliberations of this great and learned assembly. It is an honor that I appreciate as second to no other of a temporal nature, because it has been bestowed neither by conquest nor hereditary influence, nor yet by partisan strife, but by the free expression of your own choice.

The living human body, the chief object of your solicitude, not only combines in itself the greatest number of elementary substances and the most numerous organs and varied functions,

so attuned to harmonious action as to illustrate the operation of every law of physics, every known force in nature, and every step in the development of living matter, from the simple aggregation of protoplasm constituting the germinal cell to the full-grown man, but it is placed in appreciable and important relations with the material objects and immaterial forces existing in the world in which he lives.

Hence a complete study of the living man, in health and disease, involves a thorough study, not only of his structure and functions, but more or less of every element and force entering into the earth, the air, and the water, with which he stands in constant relation.

The medical science of to-day, therefore, embraces not only a knowledge of the living man, but also of such facts, principles, and materials gathered from every other department of human knowledge as may increase your resources for preventing or alleviating his suffering and of prolonging his life.

The time has been when medical studies embraced little less than the fanciful theories and arbitrary dogmas of a few leading minds, each of whom became for the time the founder of a sect or so-called school of medicine, with his disciples more or less numerous. But with the development of general and analytical chemistry, of the several departments of natural science, of a more practical knowledge of physics, and the adoption of inductive processes of reasoning, the age of theoretical dogmas and of medical sects blindly following some more plausible leader passed away, leaving but an *infinitesimal* shadow yet visible on the medical horizon.

The address closed with an appeal for the collective investigation of the phenomena of disease.

The Congress then adjourned.

SECTION ON ANATOMY.

William H. Pancoast, M.D., Philadelphia, Pennsylvania, President.

Secretaries.—Dr. John J. Berry, Portsmouth, New Hampshire; Dr. William C. Wile, Danbury, Connecticut; Dr. C. Remy, Paris, France.

FIRST DAY—AFTERNOON SESSION.

The president's address was postponed to the second day.

The first paper read was by J. M. Matthews, M.D., of Louisville, Kentucky, on

THE ANATOMY OF THE RECTUM AND ITS RELATION TO REFLEXES.

He began by reviewing the anatomical bearings of these parts, which he thought had been much neglected. He thought that the reflexes

had not been sufficiently considered, and spoke of the difficulty with which these parts were brought under the influence of an anæsthetic on account of their extensive nerve supply. He spoke of the many causes of constipation causing congestion of the mucous membrane and reflex spasm of the sphincter muscle. He related cases showing the large number and variety of symptoms rectal irritation could produce, and particularly a case of obstinate constipation simulating locomotor ataxia. He also dwelt upon the importance of examining the rectum in certain cases of constipation, and of exploring it high up.

Dr. Gervais, of Belgium, said he had seen many cases of reflex irritation from the rectum. He asked if injections of carbolio acid were practiced both for external and internal hæmorrhoids.

Professor F. C. Schaefer, of Chicago, Illinois, reported having seen cases in which most excruciating pain through the perineum had been removed by simply relieving the constipation, showing the reflex character of pain.

Dr. William C. Wile, of Danbury, Connecticut, related a case of hæmorrhoids from which the patient had become insane. The insanity was cured shortly after removing the hæmorrhoids.

Dr. Albert B. Strong, of Chicago, Illinois, mentioned a very severe case of gonorrhœa in his practice which was only cured after some existing piles had been removed.

Dr. Gallet, of Belgium, had witnessed cases similar to those related by Dr. Matthews.

Dr. J. M. Matthews, of Louisville, Ky., further stated that he did not spare the knife in operations for the removal of hæmorrhoids, but preferred it to all other means in its proper place. He spoke of the dangers attending the injection of carbolio acid. He laid great stress upon the point that pruritus ani should not be treated as a disease, but as a symptom, the cause of which must first be removed to effect a cure.

The President mentioned an instrument which he had used for some time for the treatment of rectal stricture. This instrument, which he had not yet exhibited before any society, consisted of a rectal sound formed on anatomical principles to conform to the curved direction of the rectum. He dwelt upon the importance of the proper curves in this instrument.

Dr. Ambrose L. Ranney, of New York, N.Y., then read a paper entitled,

DOES A RELATIONSHIP EXIST BETWEEN ANOMALIES OF THE VISUAL APPARATUS AND THE SO-CALLED NEUROPATHIC TENDENCY?

He thought that the neuropathic tendency an important factor as a cause of the largest mortality. He was of the opinion that many neu-

roses were caused by an eye defect. He quoted from the statistics collected by Dr. George Stevens, of New York, and from his own carefully studied one hundred cases. His deductions were as follows:

1. No one has yet shown in what this predisposition lies; hence it can be shown that eye defect is an important element in these conditions.

2. There is no recognized pathology in functional nervous diseases. The view that they are constitutional diseases is by no means established by pathological research.

3. Heredity is very common in these affections. It is one of the most marked features in this class of nervous diseases.

4. My records go to show that eye defects are found in a very large proportion of such subjects.

5. Many of the eye defects found can be shown to be congenital, being inherited like other peculiarities.

6. The manifestations of the neuropathic predisposition vary with each case. They are called forth often by extremely trivial causes. These accidental circumstances or simple coincidences are too frequently recorded as of great clinical interest.

Dr. Ranney tested all eyes with a four per cent. solution of atropine. He quoted many cases, principally of epilepsy and melancholia, which had been under the care of the best neurologists, and which had been cured by correcting errors of vision. He believed that there was absolutely no cases of migraine without eye defect. He said he could cure seventy-five per cent. of such cases.

Dr. Pierce, of Ohio, cited cases of chorea, caused by fright and cases in which the chorea had been cured and in which squint continued.

Dr. William C. Wile, of Danbury, Connecticut, then read a paper entitled

WHICH SHALL BE THE SITE OF A URINARY FISTULA?

in which he appealed to the Section to decide the question. He cited a case in which a very hypertrophied prostate gland, made the operation of entering the bladder exceedingly difficult.

The president said he was not at all afraid of the prostate gland, but treated it as a foreign body when operating.

The section then adjourned.

SECTION ON DERMATOLOGY AND SYPHILOGRAPHY.

A. R. Robinson, M.D., New York, N.Y., President.

Secretary.—Dr. William S. Gotthell, M.D.
New York, N.Y.

FIRST DAY—AFTERNOON SESSION.

Professor Robinson, the president, opened the Section with a few general remarks, and then read his opening address. He called attention to the inadequacy of the course of study in our American medical schools, necessitating a trip to Europe to perfect one's self in dermatology and other specialties. He regarded it as an error to combine in our medical schools the study of dermatology with genito-urinary diseases, rather than with general internal pathology, which holds such a close etiological relationship to many cutaneous diseases. The knowledge of dermatology obtained in other languages is apt to influence the student in his future course of study and in his practice. That there are no American views of dermatology and no American school is to be greatly regretted. It is not possible to learn dermatology in this country except under great disadvantages. He called attention to the serious evil of indiscriminate medical writing and compilation to the neglect of original work. The proportion of papers representing original research being noticeably low.

Dr. William Welch, of Philadelphia, Pennsylvania, read a paper on

VACCINATION DURING THE INCUBATION PERIOD
OF VARIOLA.

The author endeavored to show that vaccination during the incubation-period of variola has, at least in his own hands, given gratifying results, preventing or modifying the small-pox eruption. The contrary view he believes to be unsupported by facts and not tenable.

Vaccination during the initial stage is valueless. If it be performed very early in the incubation stage it exerts a modifying influence and may prevent the attack altogether.

Vaccinia does not begin to exert its effect until the formation of the areola about the vesicles.

It must not be long delayed after the contagion has been received in the system if favorable results are expected. The character of the vesicle has much to do with the protection secured. When the vesicles are imperfectly formed or retarded the efficacy is to be feared. Animal lymph is too unreliable. Fresh, eighth-day lymph, from a typical vaccine vesicle is to be preferred.

By numerous insertions of the virus we are more sure of good results. He has no doubt the process of vaccinia is hastened by multiple insertions.

He has made observations upon 144 cases, from which he has been led to believe that vaccination in the incubation period gives a certain immunity from variola.

Dr. Cundell Juler, of Cincinnati, Ohio, said he believed that the lymph from the vesicle itself gave an immunity which the crust did not, and when used he did not consider revaccination necessary, but with the crust it was. The lancet should be kept scrupulously clean.

Dr. Rogers Parker, of Liverpool, England, a public vaccinator for the city of Liverpool, said that in the large cities of England human lymph was usually employed. Large vaccination stations were established to which the parents were required to bring the children at certain times, and the children vaccinated the previous week returned upon this day so that there was always an abundance of vesicles from which to choose in vaccinating the others. Revaccination is not compulsory, but was usually done in schools and public bodies at about the age of fourteen.

Dr. Gotthell, of New York, N. Y., said that he had frequently noticed a fungating sore about two weeks after vaccination, which he had regarded as a weak ulcer. With some sets of lymph it always appeared, and with others never.

Dr. Keller, of Hot Springs, Arkansas, related an incident of war times. He was in charge of a hospital on the Southern side. An epidemic of variola broke out. A supply of lymph was received, with instructions that it came from the North, and was suspected of being poisoned. Such stories were then current. He decided to use it, and, to avoid error, divided each point, vaccinating a citizen with one part and a soldier with the other. Nine-tenths of the soldiers had unhealthy sores following the operation, but none of the citizens, showing that they were due to the scorbutic condition of the soldiers, and not to impure virus.

Dr. Yeaman, of Detroit, Michigan, said his belief in the protective power of vaccination, after exposure had occurred, grew yearly less and less. He had had considerable experience in the matter, and thought we lose sight of the many other influences brought to bear which may modify the case under observation.

Dr. Lathrop, of Dover, New Hampshire, believed that he had seen vaccinia take the place of small-pox.

Professor Robinson, the president, asked why, if vaccinia depended on micro-organisms, which multiply so rapidly, more than one point of inoculation was necessary?

Dr. Welch, in closing, said he had been skeptical in regard to the necessity for multiple inocu-

lations, and believed one typical cicatrix gave as good protection as many.

Animal virus, or virus of recent humanization, gives a more durable protection. That of long humanization produces a more superficial scar, and deaths were more frequent in those showing superficial scars. He does not believe in life-long protection of vaccination. The ulcers mentioned by Dr. Gottheil he thought were only found after animal lymph had been used. It is not true vaccination and gives no protection.

RECTAL ALIMENTATION IN DISEASE OF THE SKIN.

Professor J. V. Shoemaker, of Philadelphia, Pennsylvania, said: All substances in solution are speedily absorbed by the rectum. Medicines in the form of suppositories and powders are taken up more slowly, but are cleanly and easy of administration. In lupus of the mouth and lips, after scraping, the rectal method of alimentation and medication is recommended. Pemphigus and impetigo in children of all ages are often due to alimentary disturbance, in which this method has advantages over the administration of food and medicines by the mouth.

Acne due to stomachic irritability, with vomiting, nausea, etc., can be cured in from two to four weeks by giving milk and other nutritious enemata per rectum, care being taken to insure retention. They should be lukewarm, and given only once every four hours.

Rectal medication is of value in those to whom medicines by the mouth are distasteful.

In many cases of syphiloderm the eruption disappears after suppositories of five grains of calomel, or a fraction of a grain of the protio-tide.

Scorfuloderma can be cured by rectal enemata of cod-liver oil, when it cannot be taken by the mouth.

Urticaria can at times be best relieved by an enema of an ounce each of castor-oil and glyc-erine.

Pruritus ani treated by suppository of powdered geranium in ten grain doses acts well.

Arsenic and antimony are of great benefit in some cases of psoriasis, but they may disorder the stomach. They can then be given with care by suppository.

Iodide of potassium in small doses in the form of suppository prevent many disagreeable symptoms produced by this drug.

Dr. P. G. Unna, of Hamburg, Germany, agreed with the reader of the paper in the good effects obtained by rectal medication in many affections. He asked concerning the experience of the author in regard to the administration of mercury.

Whether diarrhoeas and other unfortunate effects were not likely to occur.

Dr. Klotz, of New York, N.Y., would be afraid that the absorbent power of the rectum would be lowered in certain cases. For example, in pemphigus in children he would be afraid that the method would fail, as in other febrile diseases.

In closing, Professor Shoemaker replied to Dr. Unna's question that when the mercurial was given first in small doses and gradually increased, the good effects were secured and the ill effects obviated.

Dr. H. Klotz, of New York, N.Y., read a paper ON THE OCCURRENCE OF ULCERS RESULTING FROM SPONTANEOUS GANGRENE OF THE SKIN, DURING THE LATER STAGES OF SYPHILIS, AND THEIR RELATIONS TO SYPHILIS.

Whenever we find a round-shaped, punched-out ulcer, with thickened, abrupt edges involving the entire thickness of the skin, with uneven floor, and a dark-green color, in a person with syphilis in its later stages, we generally consider it a syphilitic ulcer, and most frequently due to the breaking down of gummatous infiltration.

The author's observations have led him to believe that similar ulcers in syphilitics may result directly from circumscribed spontaneous gangrene of the skin. The cases have occurred mostly in dispensary practice, and the histories have not been as accurate as might be desired. In one case in private practice such ulcerations developed upon the leg, along with well-marked ulcers from the breaking down of gummata, and were carefully watched and studied. After the removal of the dry slough, such ulcers exhibit peculiarities which render it possible to recognize their origin. They bear a resemblance to the round ulcer of the stomach. Malignant precocious syphilides may give rise to similar ulcers, and the tuberculo-gangrenous syphilide of Bazin seems to be closely related to them. Syphilis may furnish adequate cause for direct spontaneous gangrene. It has been satisfactorily shown that in every stage of syphilis the virus exerts its action most constantly on and around the blood vessels, and we must look particularly to endarteritis if we can exclude other causes of gangrene. As to cerebral arteritis, its great importance has been sufficiently proved, and is none the less so because it is really not a specifically syphilitic process. That it owes its origin to syphilis in a great many cases is generally conceded. Lang, who has paid particular attention to the influence of syphilis on the vascular system, cites a number of instances. There is really no reason why the skin should be exempt from this process, and particularly if arteritis exists in smaller and terminal arteries. Proof will be furnished only

when changes in an artery leading to the gangrenous portion of the skin can be shown to exist. This proof the author has not been able to furnish.

The author concludes :

1. Ulcers resembling the so-called gummatous syphilitic ulcer may occasionally result from circumscribed spontaneous gangrene of the skin, without the formation of a previous syphilitic neoplasm.

2. Such ulcers may be distinguished by several peculiarities of formation of floor and shape.

3. They are but little affected, if at all, by anti-syphilitic treatment.

4. Spontaneous gangrene in such cases is probably due to endarteritis obliterans.

In the discussion, Dr. Unna, of Hamburg, said that endarteritis obliterans of the smaller vessels in syphilis is now a well established fact. It is astonishing that in the primary lesions of syphilis we do not have more sloughing than is generally seen.

SECTION ON GENERAL MEDICINE.

Abram B. Arnold, M.D., Baltimore, Maryland, President.

Secretaries.—J. W. Chambers, M.D., Baltimore, Maryland; William F. Waugh, M.D., Philadelphia, Pennsylvania.

FIRST DAY—AFTERNOON SESSION.

After calling the meeting to order, Professor Arnold, the president, read

AN ADDRESS IN MEDICINE.

He thought it especially appropriate upon such an occasion to review therapeutics and diagnosis.

In reviewing the therapeutic nihilism at one time prevalent, he contrasted it with that over-confidence placed in drugs which, although similarly irrational, had not been fairly tested.

The treatment of acute febrile diseases were particularly worthy of our study and attention. At present, instead of a uniform there is an English, French, German and American treatment for fevers. It was interesting to note that within the last three or four decades the rate of mortality in fevers had decreased. As illustrating, it was well to consider the therapeutic treatment of typhoid fever, especially in reducing the fever. All drugs which have been used have had the unfortunate action of overwhelming the system in a manner especially worthy of our attention. The evidence of the value of these remedies has not been established. Hyperpyrexia itself is truly a source of great danger. There is no remedy so good as the judicious abstraction of heat from the body. Those who advocate active treatment ought to review the history of the treatment of

pneumonia. The superiority of non-interference over active measures allowed this disease to make the fortune of homœopathy.

Inconsiderate medication is due to an erroneous conception of the true nature of the disease. The general principles formulated by the older physicians were on the whole excellent, so far as the general management of their cases was concerned. They treated expectantly, and were ever on the alert for complications. One part absolutely remedial is good nursing and sound hygienic rules. There is a conservative medicine as well as a conservative surgery.

Preventive medicine, which has been fairly organized, constitutes a new epoch in the history of medicine. Bacteriology and vital statistics teach us valuable lessons. The increased attention to hygiene by the people, the amelioration of the poorer classes by removing young children from the factories, and the diminution of the hours of labor, contribute largely to the increase in the longevity of the race.

Pathology has been advancing, yet therapy not equally so. The practitioner classes his diseases in sclerosis, cirrhosis, etc., with far greater ease than he applies his remedies to them. The text-books have dropped the subjects dropsy, paralysis, etc., and are changing clinical into anatomical diseases. Physicians once thought they had specifics, such as calomel and various alteratives. Perhaps we have too completely thrown them aside.

Symptomatic treatment, however, may not be neglected, it is often curative. Structural changes also may be modified by remedies which affect the functions of organs.

The criticisms of experimental therapy are untenable, as by this method we arrive directly at a knowledge of the sphere of action of the remedies. Virchow said, "therapy alone tolerates rubbish," a statement not so true now as when he said it. We ought, therefore, not only to know better the therapeutic action of our remedies, but also to increase the number of these agents by experimentation. The numerical method is imperfect, yet is still the best way to compare different methods.

In closing, he referred to the difficulties of medical practice, and the necessity of earnestness and a keen insight into physiological medicine.

Dr. Ignacio Alvara, of Mexico, read a paper entitled

SOME SUGGESTIONS UPON THE PATHOGENESIS OF YELLOW FEVER.

Although previous pathology ascribes the etiology of yellow fever to a certain microbe, the large experience with the disease in Vera Cruz,

Mexico, has led them into the theory that yellow fever is an auto blood-poisoning, either by the acid phosphate of soda of the same blood having been burned from the basic into the acid, or by the phospho-glyceric acid set free from the lecythin by the reactions in both cases that have been produced by the living of the microbes upon the constituents of the sanguineous fluid.

The idea of yellow fever being a case of poisoning by phosphorus is not a new one. Owing to similarity of the symptoms they were referred to phosphorated hydrogen. The two etiological factors in yellow fever are, first: fermentation—the one to which the name yellow fever is fitted, and second, the lesions resulting therefrom. Division of this disease is of course artificial, because many of the stages are at times absent. Having taken the abnormal temperature as the basis for the study of the malady, having noted the symptoms that accompany each one of the three stages of the abnormal heat ascent, fastigium, and descent, and by the facts observed, have arrived at the conclusion that all the cases of yellow fever must be included in two classes: those ending at the fastigium of the abnormal heat, convalescence setting in at once; again, those going on through the descent. Yellow fever has two phases of evolution. The first stage is recovered from, excepting, of course those cases where the stages are indistinct and run together. The theory was advanced that the symptoms of the first stage were caused by an excess of lactic acid in the blood, since poisoning by lactic acid causes aching in the body, dizziness, somnolence, and gastro-intestinal disturbances, identical with those of yellow fever.

Again, it is inferred that the excess of lactic acid, reacting on the remaining constituents of the blood, produces the acid phosphate (or phosphorus-element), which in turn gives symptoms identical with those of the second stage of yellow fever.

He found eighty-eight per centum of his cases had characteristic pains in the muscles of the eyes when they were turned upward. Lumbago was present in ninety-five per cent.

In yellow fever there are two conditions, abnormal heat and excessive pathological changes in the blood. This latter condition needs to be investigated by men competent in that department.

Among methods attempted to cure this disease, Doctor Alvares mentioned intravenous injection of ether, yet without especially favorable results.

Dr. Walter P. Geike, Ontario, Canada, read a paper entitled

PNEUMONIA AS MET WITH IN VARIOUS PARTS OF THE DOMINION OF CANADA.

Pneumonia he had found to be far more frequently secondary than primary; the former was probably most frequently seen as a complication of typhoid fever. In preparing this paper he had corresponded with physicians practicing in newly and sparsely settled countries, and he had found that in these localities, both East and West, it was a rare disease. It never occurred in epidemics. He asks this question: Is it because there are so few inhabitants that there never occurs an epidemic?

As sanitary methods increase low and asthenic forms and epidemics decrease.

In the recent epidemic in Toronto, the disease seemed to affect both the weak and strong alike. Investigation showed that the disease is more acute in rural, and less so in populated districts. There had been cases in the recent epidemic in which it seemed to be contagious. The specific character of the fever would naturally support such a view. Realizing fully the predisposition to the disease which arises from the abuse of alcoholic stimulants, yet improper drainage and water were the great causes.

There was no uniform treatment.

Dr. J. A. Ochterlony, of Louisville, Kentucky, reviewed some of the different theories now and formerly held in regard to the local or specific origin of this disease.

Dr. W. J. Scott, of Cleveland, Ohio, said that he found it difficult to reconcile the anatomical changes with any of the advanced hypotheses. He believed it to be infectious.

Dr. J. B. Lester, of Kansas City, Missouri, thought pneumonia an infectious disease, sometimes influenced by malaria, by unsanitary influences, and at other times by septic conditions. He had cases which did well by immediately instituting the tartar-emetic treatment with a blister. In apparently similar cases this treatment had little effect upon, owing to malarial complications, which rapidly disappear on administration of quinine. Again, the cases of septic origin he treated very successfully with whisky and milk.

Dr. H. D. Didama, of Syracuse, New York said that the microscope has demonstrated the micrococcus. What has it to do with pneumonia? Is it accidental? Experiments have shown that by inoculation they will produce the disease. In typhoid fever we have many types, yet they all are caused by the same kind of poison. Why could not this be also the case with the different forms of pneumonia? We ought to bear in mind that the latter disease has a regular course.

Blisters he approved in cases complicated with pleurisy.

Dr. James Stewart, of Montreal, Canada, inquired whether pneumonia was more frequent and also more fatal in malarious districts.

Professor William F. Waugh, of Philadelphia, thought it difficult for the disease in sparsely settled districts to be infectious.

Dr. Theodore H. Boysen, of Egg Harbor, New Jersey, practiced in a district where there was no malaria. Pneumonia in his section was a great rarity.

Dr. Geike replied that pneumonia was not more frequent, but more tedious and of a lower form, when complicated by malaria. It was also more fatal, in so far as it was of a lower form.

The Section then adjourned.

SECTION ON GENERAL SURGERY.

William T. Briggs, M.D., Nashville, Tennessee, President.

Secretaries—Dudley P. Allen, M.D., Cleveland, Ohio; Karl Mayde, M.D., Vienna, Austria; J. R. Weist, M.D., Richmond, Indiana; Arthur H. Wilson, M.D., Boston, Massachusetts.

FIRST DAY—AFTERNOON SESSION.

The Section was called to order at 3 P.M. by Professor Briggs, the president, who first welcomed the foreign representatives. He then said that this might be called the age of surgical activity. The whole field is undergoing a complete supervision, and this afternoon session would be devoted to the consideration of

ABDOMINAL SURGERY.

The first paper on this subject was read by Professor Charles T. Parkes, of Chicago, Illinois.

Professor Parkes stated that the subject of gunshot wounds of the abdomen, had of recent years been more generally understood; that he wished to place in review cases of other gentlemen and those coming under his own experience, so that deductions could be made. Up to 1885 the profession had not looked it in the face; but a few years ago surgeons were opposed to any interference. In 1884 the speaker read a paper upon this subject before the American Medical Association, since which time 36 cases have been reported, recovery taking place in 9 of them, and since coming here he had heard of two more, making 38 reported cases and 11 recoveries. The operation in these cases has been performed under all sorts of surroundings and the cases were not chosen ones. The writer considered that every case should be reported, whether re-

sulting in recovery or death, in order to secure correct statistics.

The diagnosis with the abdomen unopened was at best uncertain, but when to open the future must decide. The writer referred to the cases of Drs. Bull, McEwen, Senn, Hamilton, Dennis and others already reported. He considered that a gun-shot wound with but one opening would give us hope that the ball might not have passed into the abdominal cavity; the location of the point of entrance and the direction the ball passed, together with weight and distance from which the ball was fired, materially increased the difficulty of diagnosis. The symptoms of shock and hæmorrhage were also important factors; also the natural temperament of the patient when in normal health. The writer considered that after an operation had been decided upon the incision should be made in the mesian line, as giving greater access to all parts of the abdominal cavity. If the ball passes up through the diaphragm he considered there was but little to be done. Shock he considered was no certain indication of perforation having taken place, and that it was a very difficult matter to know when to decline to operate, as many cases that have died have revealed at the post-mortem that the patient could have been saved had an operation been performed. The writer quoted two instances:

Case I.—J. S——, was shot in two places with a thirty-two calibre ball; he was seen three hours after. One ball went through his body, coming out at his back; he had eaten a hearty dinner just before the shooting. Considerable blood was found in the abdominal cavity, and five perforations were found, one being in the kidney. He seemed to do well for twenty-four hours, but then he died. It was found that death resulted from hemorrhage of the kidney. The speaker considered the kidney should have been removed at the time of the operation.

Case II.—P. J——, aged forty-five, was shot on July 4th. He was seen fourteen hours later, when a large wound was found in the iliac region. Respiration was thoracic, and the abdomen hard and tense. On opening the abdomen, fæcal matter was discharged and six inches of gut brought out; the wound was discovered to be very large. After the operation abdominal breathing was resumed. The patient died sixteen hours after the operation: had he been seen earlier the writer thought he would have recovered. He drew attention to the method of treating these wounds, where the mesentery was involved being much more difficult to treat. In these cases he was in the custom of uniting the

wound diagonally, commencing the stitches at the mesenteric edge. He had never as yet found it necessary to put in more than one line of stitches, care being taken to draw the peritoneum together. Wounds of the liver should be sewn together with deep sutures. The spleen bleeds so freely and is difficult to suture, being so brittle. He thought it might be best to remove it, and this might also be necessary in wounds of the kidney.

The next paper was by Professor Nicholas Senn, of Milwaukee, Wisconsin, and entitled:

AN EXPERIMENTAL CONTRIBUTION TO INTESTINAL SURGERY, WITH SPECIAL REFERENCE TO THE TREATMENT OF INTESTINAL OBSTRUCTION.

Artificial intestinal obstruction stenosis.—(a) partial enterectomy and longitudinal suturing of wound. Traumatic stenosis from this cause becomes a source of danger from obstruction or perforation in all cases where the lumen of the bowel is reduced more than one-half in size. Longitudinal suturing of wounds on the mesenteric side of the intestine should never be practiced, as such a procedure is invariably followed by gangrene and perforation by intercepting the vascular supply to the portion of bowel which corresponds to the mesenteric defect.

(b) Circular constriction of intestine. The immediate cause of gangrene in circular constriction of a loop of intestine is due to obstruction of the venous circulation, and takes place first at a point most remote from the cause of the obstruction.

2. Flexion.—(a) Flexion produced by partial enterectomy and transverse suturing of wound. On the convex surface of the bowel a defect an inch in width can be closed by transverse suturing without causing obstruction by flexion. In such cases the stenosis is subsequently corrected by a compensating bulging, or dilatation of the mesenteric side of the bowel. Closing a wound of such dimensions on the mesenteric side of the bowel by transverse suturing may give rise to intestinal obstruction by flexion, and to gangrene and perforation by seriously impairing the arterial supply to, and venous return from, the portion of bowel corresponding with the mesenteric defect.

(b) Flexion caused by inflammatory and other extrinsic causes gives rise to intestinal obstruction only in case the functional capacity of the flexed portion of the bowel has been diminished or suspended by the causes which have produced the flexion, or by subsequent causes independently of the flexion.

3. Volvulus.—As in flexion a volvulus gives rise to symptoms of obstruction when the

causes which have given rise to a rotation upon its axis of a loop of bowel have at the same time produced an impairment or suspension of peristalsis in the portion of bowel which constitutes the volvulus, or when a diminution or suspension of peristalsis follows in consequence of the rotation.

4. Invagination.—Accumulation of intestinal contents above the seat of invagination is one of the most important factors which prevents spontaneous disinvagination, and which determines gangrene of the intussusciplens.

Spontaneous reduction is not more frequent in ascending than descending invagination.

The immediate cause of gangrene of the intussusciplens is obstruction to the return of venous blood by constriction at the neck of the intussusciplens. Ileo-cæcal invagination, when recent, can frequently be reduced by distentions of the colon and rectum with water, but this method of reduction must be practiced with great care and gentleness, as over-distention of the colon and rectum is productive of multiple longitudinal lacerations of the peritoneal coat, an accident which is followed by the gravest consequences.

The competency of the ileo-cæcal valve can only be overcome by over-distention of the cæcum, and is effected by a mechanical separation of the margins of the valve; consequently it is imprudent to attempt treatment of intestinal obstruction beyond the ileo-cæcal valve by injections per rectum.

Enterectomy.—Resection of more than six feet of the small intestine in dogs is uniformly fatal. The cause of death in such cases is always attributable to the immediate effects of the trauma. Resection of more than four feet of the small intestine in dogs is incompatible with normal digestion, absorption and nutrition, and often results in death from marasmus.

In cases of extensive intestinal resection the remaining portion of the intestinal tract undergoes compensatory hypertrophy, which, microscopically, is shown by thickening of the intestinal coats and increased vascularization.

Physiological Exclusion.—Physiological exclusion of an extensive portion of the intestinal tract does not impair digestion, absorption and nutrition as seriously as the removal of a similar portion by resection.

Fæcal accumulation does not take place in the excluded portion of the intestinal canal.

The excluded portion of the bowel undergoes progressive atrophy.

Circular Enterorrhaphy.—A modification of Jobert's invagination-suture by lining the intussusceptum with a thin, flexible rubber ring, and

the substitution of catgut for silk sutures is preferable to Czerny-Lembert sutures.

The line of suturing on neck of intussusciptions should be covered by a flap or graft of omentum in all cases of circular resection, as this procedure furnishes an additional protection against perforation.

In circular enterorrhaphy, continuity of the peritoneal surface should be secured where the mesentery is detached by uniting the peritoneum with a fine catgut suture before the bowel is united, as this modification of the ordinary method furnishes better security against perforation on the mesenteric side.

INTESTINAL ANASTOMOSIS.

The formation of a fistulous communication between the bowel above and below the seat of obstruction should take the place of resection and circular enterorrhaphy in all cases where it is impossible or impracticable to remove the cause of obstruction, or where the pathological conditions which have given rise to the obstruction do not constitute an intrinsic source of danger. Gastroenterostomy and jejunio-ileostomy should always be made by approximation with partially or completely decalcified, perforated bone-plates.

In making an intestinal anastomosis for obstructions in the cæcum, or colon, the communication above and below the seat of obstruction can be established by apposition with decalcified perforated bone-plates, or by lateral implantation of the ileum into the colon or rectum. An ileocolostomy, or ileo-rectostomy, by approximation with decalcified perforated bone-plates or lateral implantation, should be done in all cases of irreducible ileo-cæcal invaginations where the local signs do not indicate the existence or occurrence of gangrene and perforation. In all cases of threatened gangrene and perforation the invaginated portion should be excised, both ends of the bowel closed, and the continuity of the intestinal canal restored by making an ileo-colostomy by approximation with perforated decalcified bone-plates, or by lateral implantation. The restoration of the continuity of the intestinal canal by perforated approximation plates, or lateral implantation, should be resorted to in all cases where circular enterorrhaphy is impossible on account of the difference in the size of the lumina of the two ends of the bowel.

In cases of multiple gun-shot wounds of the intestines involving the lateral, or convex side of the bowel, the formation of intestinal anastomosis by perforated decalcified bone-plates should be preferred to suturing, as this procedure is equally, if not more safe, and requires less time.

Adhesion Experiments.—Definitive healing of

an intestinal wound is only completed after the formation of a network of new vessels in the product of tissue-proliferation from the approximated serous surfaces. Under favorable circumstances quite firm adhesions are formed between the peritoneal surfaces within six to twelve hours which effectually resists the pressure from within outward. Scarification of the peritoneum at the seat of approximation hastens the formation of adhesions and the definitive healing of intestinal wounds.

Omental grafts, from one to two inches in width, and sufficiently long to completely encircle the bowel, retain their vitality, become firmly adherent in from twelve to eighteen hours, and are freely supplied with blood-vessels in from twenty-four to forty-eight hours. Omental transplantation, or omental grafting, should be done in every circular resection, or suturing of large intestinal wounds, as this procedure favors the healing of the visceral wound, and furnishes an additional protection against perforation.

The speaker presented some specimens in which the operation had been performed on dogs; these specimens fully illustrated the value of the method advocated, and its entire feasibility, the union in some of these specimens being most remarkable. He called attention to its use in stenosis of the pyloric orifice. The duodenum, or the first convenient coil of intestine being connected with the stomach by the method advocated, adhesions would form in from fourteen to twenty-four hours.

The adhesions in the specimens shown were wonderfully firm and strong.

SECTION ON GYNECOLOGY.

Henry O. Marcy, M.D., Boston, Massachusetts, President.

Secretaries.—Georges Apostoli, M.D., Paris, France; Ernest W. Cushing, M.D., Boston, Massachusetts; Horatio R. Bigelow, M.D., Washington, D. C.; Carl Pawleck, M.D., Vienna, Austria

FIRST DAY—AFTERNOON SESSION.

The President omitted the formal address, and reserved the privilege of a more scientific contribution at a later date. He welcomed the foreign guests in the name of the profession of the entire country, and said that the Executive Committee had spared no effort to make their coming together one of marked pleasure and profit.

It seems, said Dr. Marcy, not invidious to mention the name of Marion Sims, honored by the world but doubly dear to America, with both pride and sorrow. With pride, because he conferred on our country the honor of being recog-

nized as the birthplace of gynecology; with sorrow, since in the fulness of a ripe manhood he was all too soon taken from us, when we might have hoped his noble presence and eloquent speech would have welcomed you here instead of poor words of mine. May the memory of his gentle presence abide with us, and the earnest spirit with which he sought to know the truth find imitation in our councils.

Professor Nathan Bozeman, of New York, read a paper, entitled

ARTIFICIAL AND COMBINED DRAINAGE OF THE BLADDER, KIDNEY, AND UTERUS THROUGH THE VAGINA, WITH AND WITHOUT GRADUATED PRESSURE.

In this paper the author described an instrument which he had devised recently. This draws the uterine away from the mucous membrane, and in the most perfect manner. He has also been able to combine in the same instrument drainage with the dilatation of the cicatricial tissue of the vagina. The form of the instruments, which concerns us here, is intended for drainage alone, and I have called them intra-vaginal and vulvo-vaginal drainage supports. The intra-vaginal instrument is applicable in most cases to all positions of the body. The vulvo-vaginal form is suited to the recumbent position and to cases where the perineum is lacerated. These can be introduced and removed by the patient when necessary. They are small and simple, free from angles and sharp bodies, are readily kept clean, and excite no discomfort or irritation of the vagina. They do not press on the rectum or vagina, nor do they interfere with locomotion.

The author closed his paper with

THE FOLLOWING CONCLUSIONS:

1. The importance of completion of the operation of fistula has not been duly appreciated. This forms, in many cases, the principal difficulty in the successful performance of the operation for the closure of the fistular opening. In other cases, when the fistula is cured but the complications left without treatment, they lead sooner or later to the death or suffering of the patient. The greatest care should therefore be taken to discover and remove them.

2. Kolpoplekthis, occlusion of the os uteri, and incision of the cervix in the bladder or rectum, are unjustifiable operations. They destroy the functions of the generative organs, lead to cystitis, then form venereal and vesicular calculi, pyelitis, and other diseases. Moreover, they are unnecessary. By means of the preparatory treatment of the complication by the aid of my button-suture, and my dilating speculum, I have

been able to overcome all the difficulties which have been described as indications of operation.

3. The association of combined drainage in the dilatation of the vagina is a great improvement. The inconvenience and evil effects of incontinence of urine are thereby lessened and the evil effects are lessened, and the due relation of the treatment shortened by the more rapid healing of the incisions, and the formation of less cicatricial material in the reparative process.

4. We now propose a means of palliating the suffering due to incontinence of urine in a small proportion of cases of fistula which are incurable by this method—even the dangerous one of kolpoplekthis. I believe that some form of drainage may be instituted in every case, and the patient may be thus restored to enjoy life and the performance of its duties.

5. The possession of a system of combined drainage will widen the scope of the operation of kolpo-cystotomy, done for cystitis, by removing the evils of incontinence of urine, now the chief objection to its performance.

6. Finally, I think the operation which I call kolpourethro cystotomy, followed by the exploration and treatment of the disease of the ureters and pelvis of the kidney, has a brilliant future before it. In the treatment of pyelitis, renal calculi, and obstruction of the ureters, it will restrict within narrow limits the operation of nephrotomy and nephrectomy.

Professor Grailey Hewitt, of London, England, was called on to open the discussion. He said it gave him great pleasure to take this occasion to visit America and meet those gentlemen whose efforts in the advancement of gynecology had elicited his admiration. The paper just read had shown decided advance in this line of thought. Conservative surgery, in this our day, seems to be running a race with operative surgery. He closed by endorsing the views of the essayist thoroughly.

Dr. Horatio R. Bigelow, of Washington D. C., read a paper on

CONSERVATIVE GYNÆCOLOGY.

The paper was divided into the following heads:

1. Plan and purpose of this communication.

2. The conservation of energy in its relation to conservative medicine.

3. What is meant by conservative gynecology?

4. General medicine and its relation to specialism.

5. The tendency to operative measures a dangerous one. Experience gained at a great

cost of life. Operations often performed unnecessarily.

6. Conservatism as applied to the treatment of uterine tumors. Recent results from the use of ergot and from the electric current. Exceptionally only do myoma call for laparotomies. The constitutional treatment.

7. Conservatism applied to tubal diseases and inflammations of the ovary. The psychic element. The subjective and objective symptoms. Rest treatment, electricity, Swedish movement, and bathing.

8. The relation of gynecology to the general environment of the patient. Minor disorders magnified into undue prominence by social factors in the every-day life of women. The treatment of such cases.

9. A consideration of oöphorectomy for hysteria, nervousness, and kindred disorders. Seldom warranted.

10. The restriction of abdominal surgery to men competent to practice it.

11. Closing remarks.

Dr. W. W. Potter, of Buffalo, New York, read a paper on

THE USE OF THE VAGINAL TAMPON IN PELVIC INFLAMMATION.

A married woman, twenty-two years of age, come under the author's care about a year ago, with a previous history of abortion, which happened eight months before, from which time her invalidism dated. Upon his first examination, early in June, he found great tenderness of the intra-pelvic organs and tissues, with partial fixation of the womb. The left tube was enlarged, and presented a banana-shaped mass to the touch, while the surrounding cellular tissue was more or less hard and tense. This finally grew soft, and late in August pus was discharged through the uterus, after which the tube diminished in size. There was relief from pain, and the general health improved. The improvement continued until November, when the tube again grew tender and swollen; but another discharge of pus soon brought relief again. From this time onward the gain was uninterrupted, and she was dismissed cured on April 1, 1887.

The treatment consisted in the regular and systematic tamponement of the vagina twice a week, copious vaginal lavements of hot water, frequently administered, and constitutional measures, principally of iron and arsenic. The vagina was insufflated just prior to each packing with iodoform, bismuth, mineral earth, or other powder, and then small pledgets of cotton, wool, or jute were introduced in sufficient numbers to make gentle, firm, and even pressure, as well as

afford comfortable support. Though there was much more of detail, he said these were the essentials of the management, and their continuous employment for a period of nine months brought recovery.

Reference was made to the advancement made of late in the differentiation of pelvic diseases of women, whereby the domain of gynecological therapeutics had been so enlarged that it was no longer possible to group all the ailments of woman under the

INEXACT AND MISLEADING HEADS, "ULCERATION," "PROLAPSUS," AND "INFLAMMATION."

One of the important consequences of this more accurate classification of pelvic disease had been to invite surgical aid and interference in regions previously considered unsafe for the knife, and for maladies hitherto regarded incurable. The road to fame was so direct through the open gate-way of a brilliant abdominal section, that it was just possible that some ambitious men had removed an innocent ovary or unoffending tube, now and then, to obtain a "record" as spayers of women. He would not disparage the work of Battey, Tait, Hegar, Goodell, and others in this field, for he believed it of inestimable worth, nor would he deny that excision was often necessary; but, on the other hand, he thought the appendages might often be saved by timely and judicious management. The case reported, one of a number he had seen of a similar nature, was sufficiently typical to illustrate his purpose, and from which the following deductions might fairly be drawn:

1. That many cases of disease of the uterine appendages might be arrested in their progress and diverted to successful issue without operation by appropriate treatment resorted to in their earliest stages.

2. That the early employment of regular, prolonged, and systematic vaginal tamponement afforded one of the safest, surest, and simplest ways of preventing the ravages, in whole or in part, of the maladies in question, and of averting that mutilating of the sexuality of women consequent upon excision.

VAGINAL TAMPONNEMENT.

This occasion gave him the opportunity of offering some remarks upon the employment of vaginal tamponnement in the treatment of vaginal disease in general, a subject which was again creeping into medical literature through society discussions and papers.

In order to obtain the full benefits of this treatment, it was of the first importance that the packing be well done; that it be so placed as to afford

ample support, give secure rest to the parts, make firm pressure, and not become dislodged during its wearing; while at the same time, it must not produce discomfort, interfere with the functions of the pelvic organs, nor cause irritation in the least degree.

In giving instructions as to its use he states the tampon must be multiple, and not made up of a single wad or mass, as was too often done.

For the past ten years he has made systematic use of the

KNEE-CHEST POSTURE

in the reduction of pelvic visceral displacements and of the multiple tampon in that connection, while latterly he had also employed them in the treatment of pelvic inflammations, the whole comprising many hundred cases. As a result of this experience he had reached the following conclusions:

1. In retro-deviations of the uterus the reposition of the organ should be made in the genupectoral posture without the aid of any other repositioner than the finger; it should then be shoved up and held in place by the multiple tampon.

This treatment should always precede the employment of a pessary for a long or shorter period, according to the peculiarities of the case.

2. The foregoing applies with equally cogent force to prolapses and inflammations of the ovaries whenever these principles can be suitably adjusted to such cases.

3. In abrasions, erosions, and ulcerations of the os, in the hyperplastic womb, in subinvolution, incystocele, in rectocele, and in all conditions of disturbed or impaired nutrition of the pelvic organs, it affords a most efficient form of preparatory or curative treatment, tending to give the organs rest, restore their tone, deplete engorgement, remove blood stasis, improve locomotive power, and arrest retrograde tendencies in general.

4. In pelvic inflammations, whether of cellular, peritoneal, tubal, or other origin or involvement, it will often change their current or arrest progress, prevent suppuration or abridge its ravages, and thus often guide to a successful issue without a final appeal to a formidable and perhaps dangerous operation.

Dr. J. E. Burten, LL.D., of Liverpool, England, read a paper on the subject

WHEN SHALL WE OPERATE IN TUBAL PREGNANCY?

The author considered these operations dangerous to life, more so, perhaps than ovariectomies, while the diseases for which they are recommended and performed are, as a rule, not so.

The operation is by no means a striking suc-

cess therapeutically; many of the cases operated on are no better for it, some are even worse, while in good cases it takes at least twelve months for the patient to completely recover from its effects. We hear of "brilliant" cases that have taken two or three years before the "brilliant" results became manifest. It may be fairly assumed most of these would have recovered in that length of time without operation.

When the results are the best possible the woman is mutilated for life, an offence against conservative surgery as well as the first canon of medicine, *non nocere*. The mutilation entailed by the operation is particularly offensive to the sentiments of all civilized nations, and reduces a woman to the position of a female eunuch. Her loss and degradation (?) will certainly be remembered when the recollection of her sufferings has faded.

The objections to the operation being so grave, it ought to be performed only in justifiable cases after (1) prolonged treatment by less heroic and radical measures; (2) consultation with colleagues; (3) full explanation of the nature of the operation and its results to the patient herself and her nearest friend.

As regards the

OPERATION ITSELF IT IS JUSTIFIABLE

in:

1. Rapidly growing or bleeding myomata after other treatment patiently carried out has failed.

2. Pyosalpinx, if life is threatened by repeated attacks of peritonitis.

3. Chronic ovariitis (especially inflammation of the albuginea when Graafian vesicles burst through), when the pain is fixed and constant and months have been spent in unavailing treatment.

4. Parametritis, which, though it may not be dangerous to life at the time, may render the patient a permanent invalid.

5. Cystic degeneration of the ovaries, under the same condition as to pain as No. 4.

6. Neuroses distinctly of ovarian origin that have withstood years of treatment.

The operation is not justifiable in:

1. Myomata, except as noted.

2. Pyosalpinx, if the disease has become quiescent, if pain and fever have subsided and the pus has become inspissated.

3. Hydrosalpinx at any time, unless an associated perimetritis demand removal of the parts. A less radical operation will usually suffice.

4. Perimetritis, unless the disease promises to render the patient a permanent invalid.

5. Ovariitis, except under conditions noted.

6. Cystic degeneration of ovaries, except under conditions noted.

7. Hæmatocele and hæmatosalpinx under any conditions. Laparotomy and drainage may be called for, but removal of the organs, never. The same applies to ectopic gestation.

SECTION ON MEDICAL CLIMATOLOGY AND DEMOGRAPHY.

Albert L. Gihon, M.D., Medical-Director U. S. Navy, President.

Secretaries.—Charles Denison, M.D., Denver, Colorado; Isambard Owen, M.D., London, England; A. Wernich, M.D., Coslin, Germany.

FIRST DAY—AFTERNOON SESSION.

The opening address of Dr. Gihon, the president, was entitled

ON THE DOMAIN OF CLIMATOLOGY AND DEMOGRAPHY AS DEPENDENCIES OF MEDICINE.

A place was claimed for climatology as one of the sisterhood of medical sciences. The science must be taught in a manner befitting the importance of the subject. Preventive medicine, to which climatology and demography are contributory sciences, is more important than curative medicine. The views of the late Professors Austin Flint and Samuel D. Gross were quoted in support of this assertion.

The climatological study of the future must be based upon more rational methods of investigation. The mere recording of meteorological factors is not sufficient. Determinate climatic characters are not easy to formulate. Malaria is not a climatic disease, because the cause of malaria is a removable one and within the control of man, as proved by the experience in the marshes of Savannah, the lowlands of Holland, the Maremma of Tuscany, and the Roman Campagna, whose poisonous exhalations have been converted into innocuous vapors. The drainage of the Agro Romano has reduced the death-rate of the Italian army to one-third of its former magnitude. There are few specific climatic diseases. Local conditions of insanitation are more responsible for the production of diseases than the general influence of climate. By appropriate regulation of habits, clothing, and diet, the morbid effects of climate may be modified or averted, or its sanitary or therapeutic influence heightened.

Medical demography was defined to be that branch of medicine which is concerned with the study of vital phenomena among masses of men, rather than with individual diseases—the consideration of the effects of climatic and other influences upon collective man, embracing data as to race nobility, race fecundity, race morbidity and mortality—the increase of a people or its decadence as from induced conjugal unfruitfulness, from introduced disease, etc. Thus Collective

Investigation is its appropriate first chapter, and Vital Statistics is the fruit of this Collective Investigation, of which medical nomenclature is the instrument.

The data for future generalizations must be furnished by accurate and laborious collective investigation. Vital statistics must in future be something more than mere records of so many deaths, births or marriages. Morbidity records must form the principal data for the vital statistics of the future. To have these records accurate, voluntary effort cannot be depended upon; they must be made under governmental authority. A rational nomenclature is a necessity, if our vital statistics shall serve as the basis of trustworthy generalizations. Mere symptomatological nosology is useless for statistical purposes.

Professor George H. Rohe, of Baltimore, Maryland, read a paper upon the

METEOROLOGICAL ELEMENTS OF CLIMATE AND THEIR EFFECTS UPON THE HUMAN ORGANISM.

The writer stated that medical climatology presented a much more complex problem than physical climatology. While the recorded observations of meteorological phenomena must form the basis, other conditions, such as those of the soil, must be taken into account. In studying the most characteristic climatic diseases, such as cholera, yellow fever, and epidemic dysentery, an intermediate factor—namely, the special virus of the disease—must be considered. A hot climate alone will not produce the diseases mentioned.

Sanatory or morbid effects are, however, produced by varying meteorological conditions. The effects of greatly diminished pressure upon the human organism are well known. Paul Bert and others have shown that these effects are not merely due to the physical condition of diminished pressure, but that the relative diminution of oxygen in rarified air is an important factor in their production. While cases of phthisis usually do well in a moderately rarified atmosphere, the effects of diminished pressure are not always beneficial, as has been pointed out by Dr. Loomis, who warns against the danger of sending patients with heart disease to high altitudes. It is not probable that diurnal or accidental variations of pressure have any appreciable influence upon health. Investigations conducted by the writer have failed to yield any positive results.

The primary classification of climates into tropical, temperate, and polar indicates the influence ascribed to temperature as a climatic factor. Although recent writers have attributed a determinate climatic influence to humidity, it is probable that this is of far less importance than some

have supposed. The temperature must still be regarded as our best index of climate, but too much dependence must not be placed upon it. Many of the unfavorable effects attributed to moisture in the atmosphere ought to be ascribed to coincident insanitary conditions. The sanitary or morbid effects of air-currents have not been sufficiently considered as a climatological factor heretofore.

The tendency among climatologists at present is to deny to ozone any sanitary or disease-producing influence. Hydrogen peroxide is believed to be an antiseptic agent of importance in the atmosphere by some clinicians, who also ascribe therapeutic effects to the aromatic exhalations of certain plants. Very little of a definite character is known of the effects of these conditions. Further investigation is needed. The climatology of the future must be studied upon a broader basis, and ethnological, geographical, and epidemiological data must be taken into account before drawing conclusions.

Dr. W. T. Parker, of Newport, Rhode Island, read a paper on

THE IMPORTANCE OF THE STUDY OF CLIMATOLOGY IN CONNECTION WITH THE SCIENCE OF MEDICINE.

He animadverted upon the prevailing want of knowledge upon climatology among physicians. The science should be more widely studied. A number of health-resorts were mentioned as combining the requisite climatic with the appropriate sanitary conditions to qualify them as resorts for the sick. A wagon-trip across the plains was recommended as one of the best means to obtain the advantages of a climatic health-resort.

SECTION ON MILITARY AND NAVAL SURGERY AND MEDICINE.

Henry Hollingsworth Smith, M.D., LL.D., Philadelphia, Pennsylvania, President.

Secretaries.—William Browning, M.D., Brooklyn, New York; J. McF. Gaston, M.D., Atlanta, Georgia; Eli A. Wood, M.D., Pittsburgh, Pennsylvania.

FIRST DAY—AFTERNOON SESSION.

Professor Smith, the president, in his inaugural address referred to the greatness of our country, the climatic differences met with over its immense territory, its great extremes of temperature, its geographical characteristics, the large yearly immigration, and the peculiarities, social and physical, which would largely result from these conditions. He drew a graphic picture of the desolation of the alkaline plains of the West, with their inhospitable soil, in compari-

son with the more favored sections of our country, the fertility of the prairies, and their bountiful flora and fauna.

Referring to the social characteristics of the race, these were largely due, he said, to the struggles and hardships of the early settlers, who had a hard time of it in defending the soil reclaimed by great hardships and privations from its aboriginal inhabitants, who were constantly on the war-path against them. The speaker also adverted to the great opportunities that even a man born in the humblest of conditions has of attaining the highest round of the social ladder by energy and perseverance, and gave as examples the lives of some of our presidents. The soldier, he said, also had greater opportunities than in other countries in rising from a simple private to the highest rank, as was so well exemplified by scores of instances during the late war. The wonderful resources of the country in time of emergencies were alluded to, and comparison was drawn between the small regular army of the United States in 1861 to the enormous number of men enlisted up to 1865.

A large majority of these, he said, had returned to peaceful pursuits. The speaker adverted to the remarkable growth of the medical corps of the army, and of the enormous sum of over \$47,000,000 having been expended for medical supplies during the late war. He feelingly alluded to the inestimable services of the late Professor Frank H. Hamilton, of New York, whose recent death was mourned by the nation.

The services rendered by American surgeons in the Crimean, Franco-Prussian, and other European wars were alluded to. The great value of the medical and surgical history of the war of Rebellion is admitted, he said, by all Europeans. The speaker then alluded to the great improvements made in the disposition of field hospitals, and to the desirability, which was being recognized, of treating the wounded under canvas, as their chances for recovery and freedom from complications were far greater under these conditions. The importance of selecting the proper site for such hospitals, sheltered from cold winds and naturally drained, was also touched upon.

The first paper was read by title, and was by Surgeon-Major Francis Patrick Staples, M.K.Q. C.P., Ireland, of the medical staff of Aldershot, England, entitled

A SHORT SCHEME FOR WATER ANALYSIS IN THE FIELD, IN CONNECTION WITH WHICH WILL BE SHOWN A SMALL PORTABLE CASE FOR REAGENTS AND APPARATUS.

The writer being absent, extracts were read from it by Dr. Marston, of England.

The second paper of the day, was entitled

ON THE NECESSITY FOR A MORE CAREFUL EXAMINATION OF THE WATER-SUPPLY OF MILITARY POSTS, WHERE AN UNUSUAL AMOUNT OF SICKNESS PREVAILS, AND EXAMINATION OF HYGIENIC SURROUNDINGS,

by Morse K. Taylor, M.D., Major and Surgeon United States Army.

The author briefly reviewed the history of army sanitation in this country, and spoke of the alarming death-rate at some of the military posts, due mainly to enteric and malarial fevers; an improvement at these military posts could only be had by giving proper attention to the water-supply and general sanitation of such military posts. The author showed that very little attention had been given to these subjects, and that there had resulted a vast amount of sickness in the army. This sickness is remediable, as typhoid and malarial fevers are preventable; for it is shown that where they exist in excess, it is because of inattention or neglect to seek their cause and apply the proper remedies. Wherever efforts have been made to supply those military posts and camps with an abundant supply of pure water, there has resulted great improvement in the health of the soldiers and a consequent reduction in the mortality. Many cases were related, reinforced with copious figures, in proof of the author's assertions.

In the brief discussion which followed, Dr. William H. Lloyd, Inspector-General of the British Navy, spoke of the very great importance of an abundant supply of pure water at military posts. He had noticed a certain relation between the rain-fall of a region and the prevalence therein of malarial fevers, and that an increase in the development of these fevers was generally the immediate result of a great fall of rain in the region where these diseases prevail; the speaker was unable to explain the mysterious influence which is here at work. He also, in closing, alluded to the fact that analyses of water for the use of the British navy are regularly made, and that an improvement in the general health has been directly traceable to the pure water in use therein.

Dr. Joseph R. Smith, United States Army, read an able paper on the question of

THE BEST RATION FOR THE SOLDIER.

The author endeavored to show the difficulties in the way of ascertaining the exact amount of food that will suffice for the soldier in service, and compared the rations of different European armies, and the diets devised by various observers and experimenters. He showed that in general they err on the side of too great abundance, and

briefly alluded to the proportion of carbon and nitrogen which the ration of the soldier should contain. He suggested two rations for armies, whose mean proportions of carbon and nitrogen would be about five thousand grains of the former and about three hundred grains of the latter. The paper was illustrated by numerous tables, showing the composition of the rations designed by Moleschott, Playfair, Pettenkofer, and Parkes.

In the absence of the author, Dr. John Denis MacDonald, of the British Army, his paper was read by Dr. Lloyd, of the Royal Navy. It described

A NEW FORM OF STRETCHER AND STRETCHER-SLING

for use in the field, which displayed great ingenuity. The stretcher-sling exhibited possesses the advantage of generally distributing the weight, and of combining the support of the shoulders, loins, and hips.

The next paper in order, by Dr. Valery Havard, United States Army, was read by title.

Dr. Jeffery A. Marston, of the British War Office, then read an instructive paper on

HUTS AND HUT HOSPITALS

as used by the British Army in Egypt and India. He described the construction of these in detail, and offered general remarks upon the subject of camp sanitation. A hut designed by Major Marsh, Royal Engineers, illustrated with plans and sketches, was especially recommended for its portability, durability, facility of erection and removal, and low cost. These huts are constructed with projecting eaves, and a constant change of air is effected by means of ridge ventilation.

The next paper entitled

THE CONSTRUCTION OF FIELD HOSPITALS, AS ILLUSTRATED IN THE DEPOT FIELD-HOSPITAL OF THE ARMY OF THE POTOMAC AT CITY POINT, VIRGINIA, IN 1864-65,

was read by Dr. James Collins, of Philadelphia, Pennsylvania.

Beginning with some general remarks on the great advantages of tents for field hospitals, he described at length the construction and general disposition of the field hospital established in 1864-65 upon the shore of the Appomattox river, one mile from City Point, Virginia. The hospital occupied an area of two hundred acres, and had a capacity of 10,000 men, and there was treated therein the enormous number of 71,223 men. He alluded to the excellent sanitary condition of the camp, of the means adopted for sheltering the tents from the cold winds by the transplantation of small pine-trees, the various

attempts made to heat the tents by ingenious devices, with more or less success, and to the organization of the hospital. In conclusion, the speaker feelingly adverted to a visit of the late President Lincoln to the camp, on April 12, 1865.

Dr. W. Varian, of Titusville, Pennsylvania, agreed with the writer in recommending tents for hospital use, dwelling upon the fact that by their use the liabilities to the development of enteric fever and other camp diseases was greatly lessened, and that wounds of all kinds, as a rule, do well under canvas. He emphasized the importance of allowing free circulation of air between the tents, and of making the streets of a width of fifty feet, at least. The various methods of heating the camps, spoken of by Dr. Smith, he had also tried, and found that open fires made in front of the tents was the most satisfactory.

Dr. Joseph R. Smith, U. S. Army, thought it was not an easy thing to decide as to the innocuity and harmfulness of a given water, for it was a well-known fact that many waters, even when containing a large amount of organic substances, could at times be used with impunity, while at others its use was attended with baneful results. It was impracticable, he said, to make use of the microscope in the field; the eyes, nose and tongue of a soldier were his best guides, he thought, in the selection of water for drinking purposes, but there were times while in the field, when the soldier could not exercise his judgment in such selection, and must drink any water that can be found, irrespective of its color, smell or taste, and his drinking such water was not to be prevented. As to the water supply of military posts, he thought the surgeon was powerless in preventing the pollution of the water, particularly at posts situated within populous districts; but that, in such cases, in public sentiment and appropriate legislation of the several states lay the only remedy.

Dr. Marston, of England, briefly reviewed certain epidemics which he had observed among soldiers, which were undoubtedly caused by the use of impure water; the latter was not the only cause assignable, however, in the development of malarial fevers; that the influence of freshly disturbed soil was apt to be overlooked. In certain malarial districts of China this influence was so commonly recognized that it is a popular belief, and one which would seem to be warranted by observation, that even so slight a disturbance of the soil as the scratching of the soil by domestic fowls in quest of food is sometimes followed by the occurrence of cases of malarial fever in the neighborhood.

In conclusion, the doctor called attention to the undoubted influence of water containing the salts of lime in solution in the causation of goitre and gave an illustration of an epidemic observed by him, when the disease was directly traceable to the use of such water.

SECTION ON OBSTETRICS.

DeLaskie Miller, M.D., Ph.D., Chicago, Illinois, President.

Secretaries.—W. W. Jaggard, M.D., Chicago, Illinois; Joseph Kucher, M.D., New York, N. Y.; J. Williams, M.D., London, England.

FIRST DAY—AFTERNOON SESSION.

PRESIDENT'S ADDRESS.

Professor Miller, in his opening address, extended cordial greeting and fraternal welcome to the distinguished guests present, and spoke of his appreciation of the labors of those connected with the section. The physician's labor was for the good of humanity, and all his achievements and inventions of utility, being generously added to the stock of general knowledge, would be ever preserved, for they became the property of the world. New rules and new applications were constantly arising; yet what rules, new to us, had been ages ago applied. We sought truth along ways beset with difficulties. A symptom might be accepted for a fact in pathology, while nothing was more variable—hence our deductions were liable to prove faulty. Yet no cavity should be too deep to deter us from direct investigation. We should not expect too much, and be not disappointed to find certain questions no nearer solution than they were one hundred years ago.

Sixty thousand obstetricians in the United States were anxiously awaiting true teachings, and our object should be to lead them through their numerous difficulties.

In speaking of certain obstetric difficulties, Professor Miller hoped that craniotomy in contracted pelvis would be but rarely adopted and only in exceptional cases. It was too frequently assumed to be without danger to the mother. The inference from his researches was that the maternal mortality exceeds that reported. Under the new regime the interests of the child became more important. The requisite skill for other operative interference could now be found nearly everywhere.

In ectopic gestation diverse views on treatment prevailed. We have need of more concise rules. He considered early diagnosis of the greatest importance, and then electricity to arrest vitality.

While endeavoring to render the puerperal

state aseptic, we should not fail to remember the danger from the ordinary agents used, especially where the kidneys were impaired, and he would not employ them in ordinary cases. Cleanliness was a most valuable means of asepsis.

In medicine we tolerated innovation and welcomed progress. We accept that which is fortified by experience and justified by results. The speaker then sketched the history of American obstetrics and obstetricians, beginning at the time of Samuel Guard, the family physician of George Washington, and ending on the verge of our own time.

The address concluded with the mention of those distinguished in the specialty who had died within the past year—Alfred H. McClintock, who in his last address had said, "My thoughts are with the dead;" the genial Alfred Meadows; and Carl Schroeder, one to be emulated, and whose memory should be cherished by all.

A paper sent by J. Braxton Hicks, M.D., F. R.S., of London, England,

ON THE CONTRACTIONS OF THE UTERUS THROUGHOUT PREGNANCY, AND THEIR VALUE IN THE DIAGNOSIS OF PREGNANCY, BOTH NORMAL AND COMPLICATED,

was then read.

Fifteen years ago the author had first directed attention to the fact that the uterus contracted throughout pregnancy at intervals of from five to twenty minutes; since then he had added much to his previous knowledge.

Before the fourth month bimanual palpation was necessary, later external examination was sufficient for its detection. The pregnant uterus was very soft, and offered no appreciable resistance to palpation except during contraction. In a young girl suspected of pregnancy abdominal palpation was often all sufficient, though internal examination might be necessary. It was of great advantage to obtain decisive proof before making any allusion to pregnancy. A soft condition of the uterus with a localized lump, often pointed toward the death of the foetus or to ectopic gestation. The uterus might contract about fibroids. A knowledge of the contractions often rendered easy a diagnosis otherwise difficult, as in ovarian tumor, ovarian tumor and pregnancy, ectopic gestation, and normal gestation, twin pregnancy, and hydramnios (palpation and the stethoscope as aids). With a dead foetus the walls might be rigidly contracted. We should always look for corroborative signs.

Several cases were then cited in which the diagnosis was rendered certain only by this sign. The conclusions were:

1. That the uterus contracted at intervals of from five to twenty minutes during the whole of

pregnancy, remaining contracted for from three to five minutes.

2. The uterus is firm when contracted, and the foetus cannot be distinctly felt, though when the uterus is soft the foetus is easily mapped out.

3. By noticing the contractions we are often enabled to diagnose normal pregnancy from other conditions.

4. The contractions have the physiological use of emptying the uterine veins of the carbonized blood.

5. The carbonized blood probably excites the contractions.

Professor Alexander R. Simpson, of Edinburgh, Scotland, thought the phenomenon of uterine contraction during pregnancy was now a widely recognized fact. We often met cases requiring all our diagnostic skill, and should employ all known means.

The sign mentioned was especially valuable before the foetal heart-sounds could be distinguished, and in the third month when it could be employed in addition to Hegar's sign. One important result of these contractions was that when the uterus contracted forcibly, its contained blood was suddenly emptied into the surrounding parts, distending them, and thus favoring the dilatation of the parturient canal.

Professor A. F. A. King, of Washington, D. C. said there was sometimes difficulty in recognizing the contractions of the uterus, and they might be excited by polypi, by the retention of menstrual fluid, or by fibroids. They were principally of value after the third month. During the first and second months we had no positive means of diagnosis. In single women the diagnosis of pregnancy could not be certainly made by uterine contractions alone. An important point in searching for this sign was to irritate the uterus slightly to make it contract.

Professor Charpentier, of Paris, France, appreciated thoroughly the value of Dr. Hick's sign, and related a case of hydramnios where its presence made the diagnosis possible.

Duncan C. MacCallum, M.D., M.R.C.S. (England), of Montreal, Canada, read a paper on

VICARIOUS MENSTRUATION.

After a *résumé* of the literature of the subject and the diverse opinions of modern authorities, the reader cited four cases:

1st. Mrs. W—, aged thirty-eight; six children. Never nursed. Good health. Two months after birth of child had *molimina* and vomited blood. Treated by rest, ice, and gallic acid. No unpleasant after-effects and no further hæmorrhage for four weeks, when she again had *molimina* followed by hæmatemesis. At next period

menses reappeared and have been normal since. Continued good health.

2d. Healthy woman; single. On the first day of a menstrual period was exposed to cold, and menses stopped; next day vomited blood; no vaginal discharge; regular since and healthy.

3d. Patient, aged thirty-three; healthy. First menstruation at fourteen years of age. Soon after had scarlatina, followed by amenorrhœa until eighteen. At twenty-three menstruation became very scanty and was accompanied by epistaxis for six periods, when it became regular again. Recently has again become scant and is accompanied by the epistaxis as before.

4th. Healthy women. Pregnant three months. Six weeks before had received a severe fright. Had a profuse hæmoptysis on two successive mornings, and three days later aborted. Four weeks later molimina and hæmoptysis, but since normal menstruation. Chest perfectly sound; good health. In this case the ovum was killed six weeks before ovulation became established, and obstruction being offered to the usual flow, hæmorrhage took place from the weakest point.

To constitute vicarious menstruation there must be (a) absence of menstrual blood flow, (b) blood from some other organ than the uterus, and (c) no other assignable cause for the hæmorrhage than the increased premenstrual blood-tension.

A hæmorrhage under these conditions is truly supplementary and clearly vicarious.

Professor Charles T. Parkes, of Chicago, Illinois, mentioned a case occurring in a single woman, twenty-three years of age, sick eighteen months. For four months defecation had been at intervals of from one to seven weeks, and during this time only one ounce of urine had been passed daily. Severe fæcal vomiting. No normal menstruation for two months, but at the time for the periods molimina and vomiting of pure blood. Patient was a physical and mental wreck. Exploratory abdominal incision showed intestines filled with scybalæ. The ovaries, much enlarged, were removed. Urine at once increased to a pint daily, many scybalæ were passed, and general health rapidly improved. For two periods the patient had molimenæ and spat blood. Heart and lungs normal.

Dr. Opie, of Baltimore, Maryland, though cases of vicarious menstruation rare and illy defined. He believed that when the menstrual flow was impeded the vascular tension would seek relief at the weakest point.

Dr. Nelson, of Chicago, Illinois, recalled a case where bleeding from rectal hæmorrhoids occurred at menstrual periods, there being no uterine flow. The piles being cured and the

cervix dilated, the menses appeared and gradually became normal.

Dr. Rodney Glissan, of Portland, Oregon, in thirty-nine years had seen three cases; in one menstruation had been regular, but after a serious illness hæmoptysis appeared every month and no vaginal flow for a year, when menstruation again became regular and the cough ceased. Now healthy.

Professor T. Lazarewitch, of St. Petersburg, Russia, presented a paper on

THE MECHANISM OF LABOR AND THE NORMAL FORCEPS.

After calling attention to the factors concerned in the mechanism of labor, and the necessity of an accurate knowledge of the mechanics of the process, he described a forceps which he had devised, having straight parallel blades, and locking with a simple tenon and screw.

His conclusions were: 1. That forceps be considered as a continuation of the hand as feelers.

2. That the less the dimensions of the blades the better they could be guided.

3. That detrimental action increases with the size of the blades.

4. Convex margins should not be so thin as to cut, or so thick as to obstruct.

5. That the instrument should lock easily but allow slight longitudinal rotation of the blades.

6. Blades should be parallel.

7. Handles designed for convenience in guiding and the avoidance of injurious pressure.

8. Should be of smooth metal so as to be easily made aseptic.

9. That the pelvic curve was injudicious, detrimental, and difficult to employ.

10. That his parallel normal forceps filled all these conditions.

W. S. Stewart, M. D., of Philadelphia, Pennsylvania, exhibited an

IMPROVED FORCEPS WITH PARALLEL BRANCHES.

The advantages claimed are: 1. That either blade may be applied first. 2. The impossibility of its slipping when properly applied. 3. Moderate and even compression, the degree of compression being regulated by the amount of resistance. 4. Great facility for making traction.

Dr. Opie thought that most forceps had merit in proportion to the skill and familiarity in their use by the individual operator. It was not so much the instrument as the man. We should not try to do by mechanism what the skillful hand may execute. A properly educated touch and hand were the best means of warding off dangers incident to the use of the forceps. He believed in the use of a moderate pelvic curve.

SECTION ON OTOTOLOGY.

S. J. Jones, M.D., LL.D., Chicago, Illinois, President.

Secretaries—S. O. Richey, M.D., Washington, D. C.; H. B. Young, M.D., Burlington, Iowa.

FIRST DAY—AFTERNOON SESSION.

Professor Jones, the president, in a brief address welcomed those present who had assembled from widely separated parts of the world to consider anew and together the long-neglected but important subject of Otology. He noted the advances in the last quarter of a century, and the effort that has been made, during that time, to remove the subject from the position which it so long held among the *opprobria* of medicine; that whilst much work had been done in the minute anatomy, the physiology and the pathology of the ear as well as its therapeutics, yet many open questions in otology remain, and he expressed the hope that the conferences during the congress might contribute materially towards the settlement of many of those questions. The need of a reliable and uniform standard for testing and recording the degree of acuteness of hearing,—one that should approximate in accuracy the tests now used for acuteness of vision—is universally recognized, and the subject should be considered during the sessions of the section. The value of bone-conduction as a test of hearing and a means of diagnosis between affections of the conducting and of the perceptive apparatus has not yet been fully established and was worthy of consideration by the section.

He noted the growing evidence of the general recognition, in the last few years, of the importance of the subject of otology as shown in the fact that a quarter of a century ago but few medical colleges in the United States gave special instruction on the subject, whilst now scarcely any of them, of recognized standing, are without competent instructors in otology, and the older institutions of other countries are affording more and better facilities for the study of the subject than were offered in former years. The influence of affections of the ear upon man's well-being in his intellectual condition, in his social relations, and as a member of the commonwealth were dwelt upon, and, in further evidence of the practical aspect of the case, in suppurative inflammation of the ear, the fact was cited that the danger to life of the sufferer excludes him from the benefits of life insurance, and governments will not admit him to their military or naval service, because of such risk to life or of unreliability for service.

Since abnormal conditions of the ear are often

but a local expression of remote pathological conditions of the system. Otology, like ophthalmology, may often become a valuable aid in diagnosis in general medicine and surgery.

The first paper read was by Dr. S. S. Bishop, of Chicago, Illinois, being a statistical

REPORT OF 5,700 CASES OF EAR-DISEASE, CLASSIFIED BY AGE, SEX, OCCUPATION, AND DISEASE; CAUSATION; CONCLUSIONS:

1. Youth is a predisposing cause; more than one-fourth of the whole number of cases were under fifteen years of age.
2. Sex does not figure in the etiology of ear diseases.
3. About eighty per centum were chronic diseases, and about ninety per centum were diseases of the middle ear.
4. The causes of naso-pharyngeal catarrh are the proximate causes of middle ear disease.
5. The nervous temperament was predominant.

DISCUSSION.

Professor G. E. Frothingham, of Ann Arbor, Michigan, said that he had been much interested in the valuable statistical report presented by Dr. Bishop. It is upon carefully collected and carefully considered statistics, that we must largely rely for progress in the development of otology. The statistics presented by Dr. Bishop tend to establish the fact that those who live in large cities, especially if exposed to sudden changes of temperature, as are residents of Chicago, become more frequently affected with inflammatory conditions of the middle ear than those who reside in the country, since the institution from which the statistics were gathered receives patients from all parts of the state.

The statistics also show that a larger proportion of the foreign population were thus afflicted. He believed we might find an explanation of these facts in considering the important relation existing between naso-pharyngeal catarrh, and inflammatory affections of the middle ear, and the important factors in producing nasal catarrh. The air of cities is loaded, often heavily, with germs that have a tendency to excite inflammation in mucous membranes with which they come in contact. Their power to produce inflammation of the air passages, and even to produce phthisis, has long been recognized. That they may escape from this influence, we send patients who are afflicted or threatened with consumption, to a high mountain-region where the air is not only free from such germs but is also free from particles of dust and vitiating gases. The nasal passages serve the purpose of a strainer for the air passing to the lungs, and they not only warm and moisten the inspired air, but they par-

tially free it from solid vitiating substances. These particles, lodged upon the mucous membranes of the nasal passages and pharynx, act as irritants, and so do many of the gases that are inhaled, in such an atmosphere. If we combine with this irritation the effect of a sudden change of temperature, by which the surface of the body becomes cooled, and the cutaneous exhalations are checked, we have the important factors in the production of naso-pharyngeal catarrh, and the consequent liability to middle ear disease. When such a sudden lowering of the temperature occurs, and the external surface of the body is not duly protected, the mucous surfaces most irritated are most likely to become involved in inflammatory action. Baron Larrey, who investigated the causes of the prevalence of conjunctivitis in Egypt, has ascribed it to a similar cause, namely, the irritation of the eye by exposure to dust and bright light during the day, and the exposure of the surface of the body to considerable change from the warm atmosphere, commonly experienced by day, to the cool atmosphere which prevailed during the night. He declared that those who protected themselves by proper covering at night, did not suffer from Egyptian ophthalmia, as did those who neglected this precaution. In the same way inflammation of the mucous lining of the intestines is produced more frequently when irritated by the ingestion of unripe fruit, and other indigestible food, during that period of the year when the days are warm, or hot, and the nights are cool, the body, commonly, being insufficiently protected from the chilling atmosphere.

That the germs lodged upon the naso-pharyngeal mucous membrane by breathing such an atmosphere play an important part in the production of the aural disease, Professor Frothingham is quite convinced, and that prompt and efficient treatment of the post-nasal catarrh is very important in the prevention and treatment of aural catarrh. In this treatment germicides are of great importance, as he had become convinced, by resorting to them for this purpose. He had found an application, by means of an atomizer, of a solution of bichloride of mercury, 1-2000 parts, one of the most efficient remedies for post-nasal catarrh, and he believes it acted thus beneficially, by destroying germs deposited from the air upon the naso-pharyngeal surface, which, in certain conditions of the system, might excite more reaction than at other times, when the vital forces of the patient might successfully resist their morbid influence. That the foreign population furnished the larger proportion of these cases is consistent with such an explanation. It furnished the larger proportion of

laborers, and those who lived under bad hygienic circumstances, sleeping in small, illy-ventilated bedrooms, in which the atmosphere literally swarmed with germs.

Dr. R. Tilley, Chicago, Illinois, said: "I wish to express my appreciation of the presentation of the statistics relative to the study of otology. There is, however, in connection with their presentation, a factor which has scarcely received its due weight in the tabulation. It is stated that youth is a predisposing cause. Now, I fail to perceive that youth, in itself, can, under any circumstances, be a cause of any disease whatever. If, under certain circumstances, the youthful organism is ushered into the world under a decided disadvantage, and, on that account, certain diseases are developed, we must not say that it is the *youth* which is the cause. Relative to the percentage of cases of youth, in proportion to the cases of adult life, the important fact of the much larger proportion of children in the world relative to adults must not be forgotten; but for the decease of a large number of the youthful members of the race, the proportion would be different. A similar observation should be made relative to those whose occupation requires them to spend their time, for the most part, in-doors; unless we know the relative number of the individuals engaged in in-door and out-door work, the proportion of those afflicted is of comparatively small importance. I fail to find in the report, notwithstanding the special reference to occupation, any such occupations as unquestionably tax the aural tissues; I refer to the vocation of boiler-makers. It might have been an advantage, also, to have referred to such as are engaged wholly with the telephone. If there were such care in the table it would be desirable to mention the absence of persons so engaged. Of the influence of a mere change of temperature from warm rooms to that of the external atmosphere, those who visit and live in such regions should furnish some evidence, which would contribute to the elucidation of the question.

Professor E. DeRossi, Rome, Italy: I agree perfectly with Professor Frothingham, that a very large part of the diseases of the ear are caused by diseases of the nose and pharynx. Therefore I desire that the congress express wishes that studies on laryngo-rhinology be united with those on otology, rather than to unite this last one with ophthalmology, with which it has no connection, and by which nothing would be gained in the interest of scientific progress.

Dr. H. B. Young, Burlington, Iowa. As regards the influence of change of climate in the prevalence of ear diseases, it is questioned

whether the sudden changes of temperature, with moisture, necessarily increases ear-diseases. Pointing to this is the fact, that during the past year the thermometric changes have been slight and the rainfall at the minimum, at least in the northern part of our country, and yet there has been an unusual increase relatively of ear troubles, both new, and relapsing old, cases.

Dr. Hobby, Iowa City, Iowa, endorsed the remarks of Dr. Young, and especially in the statement that the temperature was extraordinarily high and remarkably uniform in the Mississippi Valley during the last summer, and that there was a great increase in the number of diseases of the ear and nose, especially acute diseases, while the heat lasted, and before the evenings became cool.

Dr. G. W. Allyn, Pittsburgh, Pennsylvania, remarked that the warm winds from the Gulf of Mexico, and the cold winds from the great lakes made of Western Pennsylvania a perpetual battlefield. As a result, there were great and rapid changes in temperature and the moisture of this region, and if such changes were directly, or indirectly, the cause of middle-ear disease, these troubles should prevail there, and nose, throat and ear troubles are very prevalent there.

Professor J. F. Fulton, St. Paul, Minnesota, spoke of the increasing interest which is being taken in otology. He said that climate is not only a great factor in causation of diseases of the ear, but a most important one in the treatment and cure of such diseases; that many cases which could not be benefitted in one climate, may be cured by a change of climate. He referred to the favorable influence of a high and dry region in many forms of middle ear catarrh; referred to a distressing case of chronic suppurative inflammation, which could not be cured in its native climate, but which soon recovered by a change of climate.

Dr. S. O. Richey, Washington, D. C., said that in the moist climate of Washington, during the season of high temperature, catarrhs are frequent; not virulent, but, also, not very tractable, though slight. In the fashion of the day bacteria are made responsible for much of which they are doubtless innocent. They are mischievous, but nasal catarrhs may be due, entirely, to chilling of the surface of the body, with determination of blood to the more central and better protected regions.

Professor Frothingham said that he wished to correct the impression, if such had been created by his remarks, that he regarded all, or nearly all, cases of post-nasal catarrh, and consequent aural disease, as due to these inspired germs. What he did intend to assert, was his belief that

this is a frequent cause, and that germicides should be more frequently used in the treatment, and that, as a germicide for these cases, a solution of the bichloride of mercury is, by far, the most efficient of any that he had used.

In closing the discussion of this paper Dr. Bishop said:—

In answer to the doubt expressed relative to my inference from the tables, that youth is a predisposing cause of diseases of the middle ear, I will say that since it is generally conceded that youth is a predisposing cause of exanthemata, as is illustrated in the cases of scarlet fever and measles; and, as it cannot be denied that a large proportion of ear affections are directly traceable to the diseases of childhood; and, in view of the facts that children are particularly prone to attacks of coryza, which is a proximate cause of tympanic inflammation; and, that a large percentage of this class of patients refer their ear troubles to the ear-aches and running ears of childhood; and, that the tables show that children, under the age of 15 years, constituted about 28½ per centum of the whole number of cases; it appears to be a logical deduction, that *youth is a predisposing cause of diseases of the middle ear.*

Professor Fulton remarked that one-half of all cases of middle ear diseases are associated with a catarrhal condition of the naso-pharynx. He resides in what is regarded as a high and dry part of our country, St. Paul, Minnesota; while the patients, who afforded the material for this paper live in a low, moist climate, lying between Lake Michigan on the East, the Mississippi River on the West, and the Ohio River on the South. Under these circumstances it is not surprising that a larger proportion than one-half of the patients, in the statistical report, were afflicted with one or another form of naso-pharyngeal catarrh. The most prevalent form was of a hypertrophic nature. There were frequent cases of enlarged tonsils, associated with granulations on the posterior wall of the pharynx, adenoid vegetations in the vault of the pharynx, and a thickened, roughened, red and boggy appearance of the mucous membrane generally, lining the pharynx and post-nasal space. In others, the tendency was not to cell proliferation, but to an atrophic condition. The columns of the fauces were extremely thin and pale; the membrane covering the posterior wall of the pharynx, pale, thin and shining, with tortuous vessels, in some cases dilated and injected with blood, and conveying the impression of a weakened state of the coats of the blood-vessels. This condition is quite often found in those individuals of middle age who have suffered much in early life from coryza and pharyngitis.

The second paper, by Dr. B. Loewenberg, of Paris, France, was on

THE TREATMENT AND THE BACTERIOLOGY OF AURAL FURUNCLES,

and was read by Dr. S. O. Richey, in the absence of Dr. Loewenberg.

In 1880 and 1881, I published the results of my researches on the practical nature of aural furuncles, together with the theoretical and practical applications, the substance of which can be given as follows:

1. Boils are caused by an affection from outward, viz., through the ducts of the cutaneous follicles.

2. The successive outbreak of furuncles on the same individual takes place by auto-contagion, that is, through transport of the cocci upon the skin.

3. Infection from one person to others is possible, and originates from the same process as in No. 2.

These fundamental points have led me to a plan of treatment for boils and for furunculosis in general. I shall now expose this method with regard to the furuncles of the external ear, together with the results hitherto obtained.

My course of treatment is about the same as the one formerly proposed by me for otorrhœa, that is, the use of an over-saturated solution of one part of extremely fine powder of boracic acid to five parts of strong, even absolute, alcohol. This compound I use in installations into the meatus, to be repeated three to four times a day.

As long as the boil is not yet opened, a simple saturated alcoholic solution of boracic acid is sufficient, but when pus is already discharging I prefer the over-saturated solution, as it deposits a certain amount of boracic powder, dissolving gradually in the pus and thus exercising a continual anti-bacterial action.

Alcohol, besides its efficaciousness against micro-organisms, is moreover designed to facilitate the penetration of the compound into the ducts of the follicles, the seat of the disease. The fatty lining and contents of these capillary canals oppose, according to physico-chemical laws, a resistance to the entering of watery liquids, while alcohol, according to its affinity to fats, easily penetrates.

Incision of boils certainly sometimes facilitates this course of treatment, but it is often very difficult to practice it just so as to divide the follicle-ducts, which seems to me the desideratum.

Cocaine, though applied upon the epidermis, often procures passing relief.

RESULTS.

An early application of the saturated solution of boracic acid in strong alcohol often arrests the

boils; even in the cases where this abortive treatment should fail, the perseverant use of the over-saturated solution always stops the otherwise nearly unavoidable succession of boils, originated by auto-contagion, as I have called it (*loc. cit.*) These results seem to me of great importance, firstly, because aural furuncles are known to be extremely painful; secondly, because, according to my experience, the longer this local furunculosis lasts the greater is the tendency of the boils to form in parts situated nearer and nearer the drum, and consequently to prove more and more painful. These results to the best of my knowledge, have not been obtained before my researches.

Many female patients suffer, often for years, from aural boils arising before or during each menstrual period, a fact an explanative theory of which will be found in my paper. In such cases my treatment arrests these boils, or, at least, prevents their return. Nay, their formation may even be successfully prevented by a prophylactic use of this treatment begun before the catamenial epoch.

The same results can be obtained with persons who are regularly attacked by this affection in spring or fall.

BACTERIA IN EAR-FURUNCLES

I have undertaken bacteriological researches in a certain number of cases of still unopened boils of the meatus. In each case I first syringed this canal and then filled it for ten minutes with a luke-warm solution of bichloride of mercury (1:1000). A small parcel of the pus was inoculated into agar-agar or nutrient gelatine and plate cultivations were made of the whole.

I obtained the following results: The micro-organism most frequently found was staphylococcus albus, which was absent in only one case, then came staphylococcus aureus and sometimes staphylococcus citreus. Only in one case all these three staphylococci were traced together.

These results differ from those obtained by my friend N. Kirchner, from Wurzburg, who only found staphylococcus albus.

Dr. L. Turnbull, of Philadelphia, Pennsylvania, followed with a paper on

THE CAUSE AND TREATMENT OF AURAL FURUNCLES.

Professor G. E. Frothingham, Ann Arbor, Michigan, thinks the subject introduced by the two papers important, and that the paper of Dr. Loewenberg suggests, that the microbe is not yet "mustered out of service," as it were. Originally, Professor Frothingham said, he had been a skeptic as to the part that micro-organisms played

in inflammatory affections, and still he can not give his consent to all the claims made in this direction. Careful observation of diseases, and the effect of anti-bacterial remedies had, however, convinced him of the great influence these organisms have in the production of various affections, and he believes we have not yet fathomed the subject, and that new developments are yet in store for us. The detection of these pathogenic organisms in aural furuncles by Dr. Loewenberg constituted a positive contribution to the subject, which we must accept, unless other sufficiently extensive observations should prove him mistaken. Dr. Loewenberg's theory of the production of furuncles would explain certain long-observed facts, which have before received no such plausible explanations. It had long been observed that furuncles have a tendency to appear in successive outbreaks, and that the new crop commonly appears near the part originally affected. Popular belief, the result of experience, exists, that the early opening of furuncles seems to conduce to this succession. One of the most experienced surgeons of his acquaintance, and indeed he himself, had come to that conclusion a dozen years ago. Professor Frothingham believes that, in the absence of antiseptic precautions, such early openings may lead to auto-contagion, and such precautions have not, heretofore, been taken. Some, it is true, might resist this contagion, as they do that of syphilis or gonorrhoea. General constitutional conditions and certain conditions of the nerve centres, play, undoubtedly, an important part, resisting bacterial action in some cases, allowing even exaggerated action in others. This is true of syphilis and other well established contagions.

Dr. R. Tilley, Chicago, Illinois, said: In reference to the question of the influence of Micrococci in the production of furuncles, we must give full importance to the observations of Dr. N. Kirchner, of Wurtzberg, Germany.

According to Dr. Loewenberg's note, the observations of Dr. Kirchner demonstrated only the presence of *Staphylococcus Albus* in such cases, so that we have only the testimony of Dr. Loewenberg relative to the presence of the *Staphylococcus Aureus*, which is the important organism in question. Under these circumstances, while we give due importance to Dr. Loewenberg's observations, it would be advantageous to refer to the observations of other investigators in connection with the presence of Micrococci in the pus of unopened abscesses. Without looking up the question in particular, I am persuaded that the evidence is against the conclusions of Dr. Loewenberg.

The statement of the power of alcohol to dis-

solve the fat in the sebaceous follicles, requires more definite reference. Alcohol will dissolve fatty acid, but it will *not* dissolve ordinary fat. I have personally used alcoholic solutions of boric acid, with an addition of ether, to dissolve the fat in connection with suppurative conditions; not, however, on the furuncles. I refer, with some hesitation, to the use of the term "*furunculosis*." It is important, as scientific men, that we exert special care in the selection of appropriate terms. I am unable to see the special appropriateness of the term for the expression of the idea involved, and, if I am in error, I should be glad to be corrected.

Dr. Turnbull, in closing the discussion, said: "We differ from our distinguished friend, Dr. Loewenberg, in that, we believe that in the great majority of cases, boils depend upon some constitutional derangement of the system, more especially the blood, and arise in the system, not, as he states, 'by an affection from without; viz: through the ducts of the cutaneous follicles.' Secondly, that the number of these furuncles depends upon the defective system, and a loss in certain constituents of the blood, or, on the other hand, an increase of the fat globules, not alone 'by auto-contagion,' else the same results would follow on the skin of other parts of the body, when boils are opened. Thirdly, we have never known of a case of 'infection of one person by another.' In a recent instance of a boy in a family of six boys, no case occurred but one, and they slept and were in constant contact with each other; and in the severe case reported by me, the girl was one of a large family of girls, sleeping together, and yet no other case occurred. So far as we have been able to notice, no reports of any series of severe cases of furuncles have been given following out the treatment of Dr. Loewenberg.

In the use of boracic acid, we have found it to cause irritation, and sometimes small abscesses in and around the meatus. Boracic acid is one of the most feeble of the class of antiseptics; it does not compare with the bichloride of mercury, or even with carbolic acid. Incisions of a free character, the use of iron with the salts of potash, wine and, above all, nourishing diet to complete the cure, with change of air subsequently, is the one successful method of treatment for the relief of boils of the ear. No operation should ever be attempted upon the tender and sensitive ear, without the administration of an anaesthetic, like bromide of ethel, or the use of a five per cent. solution of cocaine, dissolved in one or two per cent. of pure phenol, or crystallized carbolic acid, and applied hypodermically.

SECTION ON PATHOLOGY.

Alonzo B. Palmer, M. D., LL. D., Ann Arbor, Michigan, President.

Secretaries—H. M. Biggs, M.D., New York; Isaac N. Himes, M.D., Cleveland, Ohio.

FIRST DAY—AFTERNOON SESSION.

Professor Palmer, the President, in his inaugural address, discussed the progress of medicine toward exact science.

Dr. George R. Elliott, of New York, N. Y., read a paper on

PRESSURE PARALYSIS OF POTT'S DISEASE,

in which he reported a case and presented the specimen showing pressure of the cauda equina, accompanied by secondary ascending degeneration of the posterior columns of the spinal cord.

The author's conclusions were based upon (1) experimental physiology; (2) pathological findings; and (3) clinical manifestations. They demonstrated that the lesion is a mechanical one in the majority of cases, and not a true myelitis, as ordinarily described—the latter being the lesion in only a small number of cases. They further demonstrated how circulation is interfered with and how such interference leads to the production of many forms of the paralysis recognized clinically. The specimen was interesting in showing the compression lesion of the cauda equina, and as probably being the first case reported where the pressure of the cauda equina, leading to secondary degeneration, was due to spinal caries.

Diagrams were used to illustrate the points made.

SECTION ON PSYCHOLOGICAL MEDICINE AND NERVOUS DISEASES.

Judson B. Andrews, M. D., Buffalo, New York, President.

Secretaries—G. A. Blumer, M. D., Utica, New York; M. le Dr. A. Bouchereau, Paris, France; E. D. Ferguson, M. D., Troy, New York.

FIRST DAY—AFTERNOON SESSION.

The Section was called to order by the president, Dr. Andrews. After the reading of the list of Vice-Presidents and Secretaries, the President delivered his address, entitled,

THE DISTRIBUTION AND CARE OF THE INSANE IN THE UNITED STATES.

After delivering an eloquent eulogy on Professor John P. Gray, who was the first president of this section, he said: The amount of insanity bears a close relation to the duration of the social and governmental life of the people. Dividing the country into two great belts of north and south, there is an almost regular proportionate decrease of lunacy as we leave the older settled parts of

the country along the Atlantic coast, till we reach the extreme western slope.

The New England states lead with one insane person to every 359 inhabitants. This decreases until we reach the newer states and territories with one insane person to every 1,263 inhabitants. In the seaboard states of the southern belt we have one to every 610 inhabitants, and the extreme Southern States with but one to every 935 of the population. This emphasizes the statement that the pioneers of our newer settlements are the more hardy and vigorous citizens, and that the feeble and dependent are left in their former homes to enjoy the comforts of the hospitals and asylums, which are the special growth of the older civilization.

New York is the first Irish city in the world, and Berlin and Hamburg are the only cities which contain as many Germans as our own metropolis. We have among the negroes in the United States one insane person to every 1,097 of inhabitants. In the negro race the proportionate increase of insanity is far greater than in any other division of the population. From 1870 to 1880 there was an increase in the census of the colored race of 34.85 per cent, while for the same period there was an increase of 25.8 per cent. of the insane. This large multiplication has occurred since emancipation from slavery, and the consequent change in condition and life. The causes are briefly told—enlarged freedom, too often ending in license; excessive use of stimulants; excitement of the emotions, already unduly developed; the unaccustomed strife for means of subsistence, educational strain, and poverty. Among the Chinese and aborigines there has been but a small increase of insanity. There is among them less of the refinements of civilization, less competition and struggle for place, power, or wealth, and, as a consequence, less tendency to mental deterioration.

Dr. Andrews presented a list of state institutions in the United States, number of patients in each, and also the number of medical officers attached to each institution. One hundred and twenty-one asylums were represented, fifteen of these having been built since 1880. In 1880 there were 39,093 patients in these asylums. In 1886 the number had increased to 61,411, an annual increase of nine per cent. At the present rate of increase, before the end of the decennial period we shall have 75,000 in our asylums.

Dr. Andrews next referred to the diversity in lunacy laws in the various states of the union, comparing them with the general governmental laws of Great Britain. Special accommodation for the criminal class—a highly desirable innova-

tion, has been entered upon by two states only—New York and Illinois.

With the exception of Delaware and Vermont, every state in the Union has adopted the state system of caring for the insane, and New York was the first state to erect separate asylums for the chronic insane. Asylum architecture has undergone material changes during the past twenty years, the plan now most generally adopted being that of building detached blocks of structures in different parts of the asylum grounds, within easy reach of the administration building, these to accommodate the feeble and helpless, the epileptics and acutely maniacal patients. In many portions of the country, buildings separate and complete are joined by connecting fireproof corridors.

The President next outlined some of the important changes occurring in the interior management of asylums at the present time. Among them, the introduction of electricity for lighting purposes, of direct radiation for heating purposes, and of natural ventilation as taking the place of the blower-fans much in vogue in former years.

A higher medical standard is to be noted in the asylums of the United States. The medical officers are in very few cases appointed through political favoritism, and in the state of New York the civil service requirements insure the sound medical equipment of assistant physicians. Oophorectomy is now recognized as a legitimate mode of treatment, and castration in appropriate cases has, at present, some able advocates; electricity is now being used with more intelligent knowledge of its power. Its hand-maid, massage, less powerful and less mysterious, but not less practical, has gained a position of prominence in the treatment of insanity in many institutions. The experiments in mesmerism, mind-reading, and the faith-cure have led to a closer investigation into the relation between mind and body, with a result of finding in expectant attention a valuable and legitimate help in the treatment of mental diseases.

Dr. Hack Tuke, M. D., F.R.C.P., London, England, sent a paper, which in his absence was read by Dr. G. F. Blandford.

THE VARIOUS MODES OF PROVIDING FOR THE INSANE AND IDIOTS IN THE UNITED STATES AND GREAT BRITAIN, AND ON THE "RAPPROCHEMENT" BETWEEN AMERICAN AND BRITISH ALIENISTS IN REGARD TO THE EMPLOYMENT OF MECHANICAL RESTRAINT.

It was largely a comparison of the systems pursued in both countries. At the last official census there were 80,000 idiots and insane in England and Wales, 72,000 of them being paupers and 8,000 belonging to the private class. In

the workhouses of England fourteen per cent. of the paupers were cared for, and Dr. Tuke believed well cared for. In some of the workhouses there are very good lunacy wards, and these, in his opinion, provided far better for this class than do American almshouses. The Doctor thought well of the increasing tendency in this country to segregate the insane, as shown at Willard and Kankakee. He deplored the fact that so many patients were still retained in the almshouses of the United States, and instanced the abuses in the Cook County Asylum at Chicago. The Doctor thought the plan now being adopted in Massachusetts of boarding the chronic insane in private families was attended with considerable danger to the families, and might also result in overcrowding of patients, but, as a whole, commended the new departure.

Dr. Tuke concluded with remarks upon then little difference at present existing in the practice of British and American alienists, as regards non-restraint. He said that the system of Connollyism or strict non-restraint was not a feasible one in either country, and was glad to know that in the United States judgment had been used in the use or none-use of restraint, instead of blindly clinging to an ideal.

Dr. Savage, of London, England, said that he was glad to know that enlightened American superintendents had not tried to carry out the principles of strict Connollyism. There could be no absolute non-restraint so long as asylums existed, because life in an asylum in itself meant restraint. It was a mere matter of degree. The humane treatment of insane patients was in direct relationship to the civilization of a country. Let the principles of non-restraint be preached at all times, and let your attendants know this; otherwise you will have trouble. Youthful alienists might preach the doctrine of Connollyism pure and simple, but so high an ideal could not be attained so long as the preservation of society and the preservation of the patient's life is to be considered.

Dr. Andrews said the practice of American alienists was for the minimum of restraint in all cases. In former years there had been in the minds of Americans a misconception of the real practice of their English brethren. A study of the Blue Books, however, had served to show that strict non-restraint—Connollyism—had not been carried out in Great Britain. There had been considerable feeling manifested in the past between English and American mental specialists upon this topic, and Dr. Andrews was glad to say that as a more perfect understanding had come in regard to English practice, there was found to be little actual cause for dispute or disagreement.

The last paper of the day was read by Dr. Henry M. Hurd, of Pontiac, Michigan, on

THE RELIGIOUS DELUSIONS OF THE INSANE.

He first treated of the religious delusions which accompany the mental development of over stimulated and injudiciously educated children. These delusions are apt to take the form of morbid fear. When the child fails to derive pleasure and an emotional glow from prayer or praise, he fancies that some duty has been neglected or improperly performed, and is tormented by doubts and overwhelmed by remorse. An interesting case was then given by Dr. Hurd. The next class treated of by the author of this paper were patients suffering from the religious delusions of the insanity of masturbation. In the beginning morbid fear is predominant, and a study of the Bible and a habit of introspection is present. The patient is scrupulous in all religious observances, and there is a silly vanity in religious matters. Hallucinations are present. The patient becomes egotistical in his religious ideas. Dr. Hurd gave an illustrative case of this form of mental disorder. The patient had striking hallucinations of hearing, and constantly communicated with invisible persons. The doctor next passed to the religious delusions of paranoia. In the congenitally abnormal class referred to there is, as early as puberty, a precocious sexual excitability which gives rise to an unnatural religious susceptibility. The patients have a strong religious bias and are apt to embrace peculiar views, or to be attracted by the latest novelty in religion. The immediate cause of the development of religious delusions is generally some physical ailment or shock. One patient, after praying for several nights in a cornfield, in great agony of mind, felt the burden of sin fall from his aching shoulders and saw it glide away in the darkness, dark, sinister, and, to use his own expression, "like a small woodchuck."

Dr. Hurd cited many interesting cases, taken from the records of his asylum, as illustrative of this form of mental disease.

Dr. Hurd said the connection between sexual impulses and the development of religious delusions was not from any association of ideas, but rather from the close association and inherent unity of emotional states. The religious delusions of over-stimulated children are generally relieved by rest, freedom from study, and a judicious correction of the educational errors which produced them.

SECTION ON THERAPEUTICS AND MATERIA MEDICA.

Trall Green, M.D., LL.D., Easton, Pennsylvania, President.

Secretaries—Frank Woodbury, M.D., Philadelphia, Pennsylvania; Alfred S. Gubb, M.D., London, England; L. Lewin, M.D., Berlin, Germany; F. Dronke, M.D., Berlin, Germany.

FIRST DAY—AFTERNOON SESSION.

Professor Green, the president, delivered a brief address at the opening of the session, which dealt chiefly with the history of the development of the study of therapeutics and materia medica, especially referring to the labors of Dr. John Morgan, of Philadelphia, who delivered the first lectures upon the subject in this country. The instruction which he gave was based upon the teachings of the University of Edinburgh, and its traditions have largely influenced medical education in this country.

Dr. Phillips, of Ventnor, Isle of Wight, Vice-President of the Section, occupied the chair during the opening address, and at its conclusion returned thanks for the interesting remarks, and said that English therapeutists felt under great obligation to Wood, Dunglison, Stillé, and other American workers in this field. He referred to his recent labors upon the subject of the action of diuretics, the results of which he had embodied in a paper which he is shortly to read before this section.

Dr. J. M. G. Carter, of Waukegan, Illinois, presented a "Synopsis of the Medical Botany of the United States," in which 140 orders, 620 genera, and over 1,300 species are described. The study of these is much simplified by the knowledge that the different species of the same plant resemble each other in therapeutic effect, differing principally in degree. There are similar differences in the same species, according to the conditions under which the plants are grown. Vogel has pointed out that *conine* does not appear in conium plants grown in Scotland; cinchona plants grown in hot-houses do not produce quinine. The mistletoe and the black haw he considered the most valuable additions recently made to our therapeutics, the former in urethral, the latter for uterine, irritation.

Dr. Coghill had been much impressed by the value of some American indigenous drugs, but he pointed out the necessity of better appreciation of their physiological effects in order to ascertain their real value in therapeutics.

Dr. Phillips said that with reference to one drug mentioned, grindelia, he had obtained excellent results, and had a long series of notes of its successful use in asthma and emphysema with dilated heart.

Dr. William Murrell, of London, had noticed a great variation in the strength of drug preparations; as the rule, the samples sent for trial were

made with more care than the ordinary article supplied on prescription.

Professor Frank Woodbury, of Philadelphia, mentioned the employment of mistletoe in weak heart, and in post-partum hæmorrhage, owing to its effect upon unstriated muscular tissue. *Rhamnus purshiana* he considered a useful substitute for rhubarb, and equally efficient as a cholagogue.

Dr. F. E. Stewart, Wilmington, Delaware, read a paper entitled,

A PROPOSED INVESTIGATION OF THE MATERIA MEDICA OF THE WORLD BY THE GOVERNMENT OF THE UNITED STATES.

in which he advocated governmental supervision over novel therapeutic agents, and the placing of some restraint over the commercial enterprise of drug manufacturers, who introduced new drugs at extortionate prices. He also denounced the proprietary medicine business as an abuse of the copyright privilege. He suggested the establishment of a bureau for the examination of proposed new remedies, proprietary or otherwise, by the government, and to include a supervision over the entire drug supply of the country.

Dr. H. H. Rusby, by invitation, opened the discussion. He considered the present a very opportune moment for agitating such a measure as the paper advocated. By a combined effort of the physicians and pharmacists, a committee might be appointed to improve the botanical work done under the direction of the United States government. Hitherto, the amount appropriated had been lamentably inefficient, and had been carried on under the department of geology; it should be transferred to the department of agriculture. If the International Medical Congress were to pass a resolution calling upon Congress to give adequate means and energy to the botanical work, its value would be greatly enhanced, and its importance in a medical point of view would be very great.

Some remarks were made by different members, denouncing the patent medicine abuse in this country.

Dr. Stewart, in closing the discussion, said that a patent was never intended to secure unlimited secrecy, but on the contrary, to insure publication of an invention after a period of time. Moreover, the so-called patent medicines are not patented, and cannot be patented; they are sold under a misapplication of the copyright law.

SECTION ON LARYNGOLOGY.

William H. Daly, M.D., Pittsburgh, Pennsylvania, President.

Secretaries.—William Porter, M.D., St. Louis,

Missouri; D. N. Rankin, M.D., Alleghany, Pennsylvania; Ottakar Chiari, M.D., Vienna; Hermann Krause, M.D., Berlin, Germany; E. G. Moure, M.D., Bordeaux, France.

AFTERNOON SESSION.

The Section was formally opened at 3 P.M. with

THE INAUGURAL ADDRESS OF DR. DALY, THE PRESIDENT.

It was most gratifying, he said, to see so many gathered together from all parts of the Union to welcome our guests who have come from afar, and to redeem the pledge made to them at Copenhagen in 1884. It was moreover a source of the highest pleasure to meet so many of those from foreign lands, whose names are far too familiar to admit of their being regarded as new acquaintances. We appreciate the honor of entertaining such representative men, and extend to them our heartfelt greeting, and cordial welcome to all.

The President then called attention to the status of laryngology in 1876, compared with its present advancement. In rhinology much has been done for the successful treatment of hay-fever since the appearance of a paper by the president, in 1881, upon the predisposing intra-nasal causes of this disease. Now a large percentage of those who formerly fled to the mountain tops in search of relief, may be cured at home by proper and rational surgical treatment. The lamented Hack and other able workers claimed more from this plan of treatment than he then advised; but seven years of observation strengthen his belief that a large proportion depend upon a chronic intra-nasal disease, without the presence of which pollen, dust, and other agents are innocuous. A hope for the future is that more perfect local treatment may cure a still larger percentage.

The laryngologist of the future must give more attention to the nasal passages, and the rhinologist must be more of a surgeon than a physician. Who has not noted the rapid improvement of puny children following the treatment of enlarged tonsils and hypertrophied tubinated tissues, so as to give free breathing space? Many have with him verified by years of experience that a large proportion of inflammatory diseases of the larynx are secondary to intra-nasal diseases of a like character. The aid that modern rhinology extends toward the treatment of diseases of the internal and middle ear is appreciated by every aurist.

The President called attention to our indebtedness to the persevering work and ability of the now silent members, such as the late Elsberg,

Krishaber, Foulis, Bruns, Waldenburg, Burow, Bocker and Hack.

The first paper was read by Dr. Richard H. Thomas, of Baltimore, entitled:

A CONTRIBUTION TO THE CAUSES OF SO-CALLED HAY-FEVER, NASAL ASTHMA, AND ALLIED AFFECTIONS, CONSIDERED FROM A CLINICAL STANDPOINT.

The term hay-fever he uses, not because scientifically correct, but because it is well understood and convenient. The factors that appear to enter into the causation of hay-fever and other nasal neuroses are:

1. The general nervous system. Although a neurasthenic condition is so often present with a nasal, neurosis, the frequency of its occurrence, without reflex phenomena associated with the upper air-passages, shows it inadequate to explain the phenomena.

2. The theory that the condition of nervous system is similar to epilepsy has not been proved.

3. The intra-nasal condition is usually that of hypertrophy, or such disease as polypi, deflected septum, etc., tending to more or less nasal obstruction.

The author has noted, however, (a) that nasal obstruction in most cases is not associated with reflex phenomena, and even in neurasthenic individuals, as Dr. Bosworth, of New York, claims, only the "proper pollen" is needed to produce hay fever. One unique case improved as occlusion advanced. (b) Obstruction is not first symptom in asthmatic manifestations, nor is it always present. (c) Cases have been reported of reflex phenomena associated with atrophic rhinitis. Morrell Mackenzie has seen cases where there was nothing abnormal beyond hyperæmia, and author corroborates as far as nasal asthma is concerned. (d) Temporary attacks are brought on by touching sensitive areas, independent of nasal obstruction.

4. The author has seen cases where hay asthma followed chronic nasal trouble, and other cases where it apparently preceded structural change. Special sensitive areas are claimed to exist in the upper air passages. Irritation, disease, hypertrophy, polyp, etc., gives rise to reflex phenomena. They are variously located by different authors on septum and turbinated bodies. When all are considered, there is very little mucous membrane that is not included.

5. After experimenting, Dr. Thomas concluded that the sensitive areas varied greatly with different individuals. Examinations were made between the attacks. Sensitive areas on one side at times bear no relation to those on the other. He could not decide which portions of nasal tract were most sensitive, unless it were septum. The

favorite location is that part supplied by the olfactory. Phenomena noted were paroxysmal sneezing or cough, and temporary asthmatic dyspnoea, headache, etc.; none where mucosa was healthy.

Reflex sensitive areas are found in hay-fever, but not in normal nose.

6. Modern research shows that the nervous element enters to large extent. A peculiar condition either of nerve centers or endings gives perverted action under certain forms of irritation. He agrees with Lublinski that the olfactory, trigeminus, and sympathetic are involved in producing a paroxysm. No such disturbance is caused by pathological conditions until exciting cause is present.

Exciting causes.—(1) Inert substances floating in air, dust, pollen, etc.; (2) psychical impressions; (3) meteorological changes, sunlight, wind, etc.; (4) morbid changes or growth; (5) irritation reflected from distant part of body.

Any of these may give rise to paroxysm when idiosyncrasy exists, not otherwise.

Pollen of Indian-corn, ragweed, luxuriant vegetation, smell of flowers, flour, meal, dust, odors of close room, where oysters have been opened, dissecting-room, dust of tobacco, smoke, etc.

Mental impression and often sympathy with another who is afflicted will cause an attack.

Hereditary tendency is often noted. What affects one may have no effect on another.

Treatment.—Remove patient from irritant or irritant from patient if internal, as when polyp, etc. Irritation of distant organs should be treated. It is often difficult to account for the curative effect of change of locality.

Use of cocaine gives temporary relief, but there is danger to tissues from protracted use. Powders are of doubtful benefit. Flannels give some relief. Radical treatment is called for. If nervous tissues are at fault, treat accordingly. Iron, quinine, arsenic, hydrobromic acid (Gardner's syrup), valerianate of zinc, etc., build up health. We are indebted to Dr. Daly for the introduction of local treatment of hay fever. Cure co-existing nasal disease and cauterize sensitive areas. Galvano-cautery preferable to acetic acid or chromic. Avoid destroying too much tissue. Prevent pain by cocaine and follow up with Dobell's solution. Carry on treatment between attacks and leave no sensitive areas untreated. Each patient requires separate study.

SECTION ON PHYSIOLOGY.

John H. Callender, M.D., Nashville, Tennessee, President.

Secretaries—R. W. Bishop, M.D., Chicago,

Illinois; Bernard Fraenkel, M.D., Berlin, Germany; Randolph Barksdale, M.D., Petersburg, Virginia.

FIRST DAY—AFTERNOON SESSION.

In his inaugural address, Professor Callender, the president, directed special attention to the influence exerted by the cell on the processes of development and decay.

Dr. Daniel G. Clark, of Toronto, Canada, read a paper on

THE BASAL GANGLIA OF THE BRAIN AS CENTERS OF PSYCHIC AND FUNCTIONAL POWER.

The author of the paper maintained that these ganglia are psychical centers: (1) because of their greater activity physiologically; (2) because they are the focal centers to the hemispheres; (3) they are vital points of greater significance than any other part of the brain, and (4) experiments point to their directing and controlling power.

The paper gave rise to discussion, which was participated in by Drs. Love, Wythe, Stockman, of Edinburgh; Kleinschmidt, of Washington; Hallibert, Professor Madden, and Boenning, of Philadelphia.

Dr. Richard Caton, of Liverpool, England, then read a paper entitled

RESEARCHES ON ELECTRICAL PHENOMENA OF CEREBRAL GRAY MATTER.

These were the chief results obtained. Owing to the great difficulty of the investigation, more than half of the experiments were valueless.

1. Electrical currents are present in the gray matter of the convolutions.

2. These currents are increased during the arrest of functional activity caused by anæsthetics or death. After death the current diminishes and disappears.

3. In regions of the brain related to a special function, negative variation appears to take place during functional activity.

4. The occurrence of negative variation in an area of the brain assumed to be related to a special act at the movement of the performance of the act affords further evidence of localization.

5. These experiments afford some evidence that areas of brain related to movements of special muscles are also related to some form of sensibility in the skin adjacent to those muscles.

SECTION ON DISEASES OF CHILDREN.

J. Lewis Smith, M.D., New York, President.

Secretaries—I. N. Love, M.D., St. Louis, Missouri; Henry Coggeshall, M.D., Mount Vernon, New York; Dillon Brown, M.D., New York; Lucien Darvansville, M.D., New York.

FIRST DAY—AFTERNOON SESSION.

Professor Smith, the president, in his opening address, referred to the practical value of the papers about to be presented, and congratulated the section on the large number of papers which had been contributed by prominent men in active practice in England, Scotland, France, Germany, and South America. The subject of intubation of the larynx would be considered in several papers. Important contributions in this connection would be read from M. Bouchut and Dr. O'Dwyer. The name of the former will always be honorably mentioned for his experiments in this direction, and Dr. O'Dwyer would be remembered by posterity as one of the benefactors of mankind.

The first paper read before the section was by Dr. Jules Simon, of Paris, who called attention to

A FORM OF CEREBRAL IRRITATION IN CHILDREN,

independent of organic lesion, and not the result of heredity or syphilis, but due to the deplorable tuition of young infants, even those at the breast, who are, in many cases, constantly harassed by the nurse with loud singing and sudden lights, and are liable to be excited by tea, coffee, or spirits, either directly or through the milk of the nurse. Add to these causes the feverish excitement which spreads around the cradle of the infant in modern society, and the result is a condition of cerebral irritation in which the child is unduly agitated by the most trivial causes. Sleep is light and frequently interrupted; exaggerated reflexes produce vomiting, subultus, and convulsions. The signs of precocity become more painfully evident when the child reaches the age of two or three years. He is in constant motion. The eye is restless and the expression vacant. The mind is alert, but incapable of application.

The cerebral irritation thus manifested may appear in the first months of life, or it may gradually unfold itself at a later period. It terminates toward the age of five years, either by cure or by cerebral sclerosis, epilepsy, or meningitis.

It is the duty of the physician to secure a strict hygiene, with special view to prevent nervous excitement caused by unusual noises, or sights, or stimulating food and ill-advised friendly and social attentions. The open air and residence at the sea-shore or in the country are desirable, and medication, when required, should be by the bromides.

Dr. S. H. Charlton, of Seymour, Indiana, had recognized the condition described by Dr. Simon, and had traced the cause in some cases to malaria and prolonged hot and dry weather. He

emphasized the influence of heredity in this class of patients.

A brief communication presented from M. de Saint-Germain was as follows:

"Not being able to attend the congress, I send a note from my surgical experience. What I bring is not a stone for the edifice, not even a pebble, only a grain of sand. But each must do the best he can. Please accept the will for the deed.

"He who invents a surgical operation receives great credit. Recognition, at least, should be given him who substitutes for two operations two simple procedures, less dangerous, quite as effective, and more easy to perform. I propose ignipuncture of the tonsils and preputial dilatation in place of tonsillotomy and circumcision.

"IGNIPUNCTURE OF THE TONSILS.

"Tonsillotomy is not free from the possibility of fatal accidents. To mention uncontrollable hæmorrhage and invasion of the wound by diphtheria is to make it clear that the operation is not so harmless as has been supposed.

"Krishaber tried the thermo-cautery, but his application was so superficial that treatment was indefinitely prolonged.

"I operate with the aid of a modified Smith's gag, thrusting the thermo-cautery into the tonsil to the depth of three-eighths of an inch. Two to four applications, at weekly intervals, reduces the tonsil to a shrivelled and insignificant stump.

"As to

PREPUTIAL DILATATION,

it may well take the place of circumcision, which is sometimes followed by serious hæmorrhage, diphtheritic invasion of the wound or partial gangrene.

"I reserve circumcision for those cases alone (about one in three hundred) in which dilatation is impracticable. I used a two-bladed dilator instead of the three blades of Nelaton, introducing it and slowly expanding the orifice. The operation is finished by separating the adhesions with a grooved director and is followed by daily massage, in which the glans is alternately exposed and covered.

"With both of these simple procedures I have always secured excellent and durable results, and have met with no untoward complications. In view of the great frequency of these two classes of cases, am I not right in presenting these simple and effective procedures as a surgical advance?"

Professor Lewis A. Sayre, of New York, then read a paper on

THE DELETERIOUS RESULTS OF NARROW PREPUCE AND PREPUTIAL ADHESIONS.

His first paper on this subject was published in the "Transactions of the American Medical Association." He was the first to draw the attention of the public to this important subject. It is now generally admitted that paralysis, and various other nervous symptoms, including a want of co-ordinating power, are in some cases induced by the pressure of the prepuce on the glans. The remedy is removal of the constriction and of the retained and concrete smegma, and such an arrangement of the parts that the prepuce shall glide *easily* to and fro over the glans, without restriction, permitting cleanliness, and thus removing one great source of danger.

For this proper arrangement of the prepuce it is necessary in some cases to perform circumcision, or an actual removal of a small portion of the prepuce, and sometimes to dissect it from *actual adhesion* which is a very different thing from ordinary normal agglutination. But there is no occasion for removing any tissue, unless there is great redundancy *with constriction*. And in the great majority of cases the object sought can be easily accomplished by pushing a grooved director as far back as possible, and then dividing with the curved bistoury enough tissue to allow of tearing back the prepuce and uncovering the glans. The next step is to make a slight nick with the scissors, or bistoury, though the thickened fold of the edge of the frænum. Having done this, it is easy with the thumbs and forefingers to tear down the frænum and other adhesions, expose the glans, and remove from the sulcus behind the corona the hardened smegma, sometimes containing chalky concretions. In this procedure there is little loss of blood, and no loss of tissue whatever. A stitch on either side of the incision, between the skin and the mucous membrane, may or may not be required. Thus the glans is left partially covered, and it may as well be *freely* and *easily* uncovered. Having been responsible for bringing the subject before the profession, the writer wished to raise his voice against the mutilation and disfigurement of the organ which is often seen, which by too free removal of the prepuce leaves the glans entirely unprotected, as well as against the indiscriminate performance of the operation in cases where it can be of no avail.

The object of the paper was to harmonize two views—that of those who would operate in cases of infantile paralysis, and that of those who deny the existence of a paralyzed or even muscular inco-ordination from reflex genital irritation—by showing that there are cases of anomalous and extraordinary nervous manifestations certainly

dependent on some irritation of the genital organs, in which an operation is not only justifiable, but absolutely demanded, and that in many instances the relief from all the strange symptoms has not only been immediate, but permanent after the operation, without any other medical or surgical treatment. It is also equally certain that any attempt to relieve a nervous disturbance dependent on some central lesion of the brain or spinal cord would result in no benefit whatever. The views of the writer were sustained by a large number of cases occurring in the practice of physicians in different parts of the country.

Dr. De F. Willard expressed his belief in the existence of reflex symptoms from genital irritation, and that many cases can be relieved by uncovering the glans. He advocated exposing the glans by manipulation with the thumbs and forefingers, without incision of the prepuce or frænum, continued and repeated until the prepuce is no longer tight.

Dr. I. N. Love, of St. Louis, Missouri, had for many years practiced circumcision. He believed in the Mosaic law from the standpoint of sanitation, morality, and the general well-being of the child. He had not succeeded in inducing mothers and nurses to secure absolute cleanliness when the sulcus is habitually covered by the prepuce.

Dr. S. C. Gordon, of Portland, Maine, also advocated circumcision and believed that it should be more radically performed than it usually is.

Dr. P. R. Furbeck, of Gloversville, New York, recognized the importance of uncovering the glans and securing easy motion of the prepuce, but believed in the value and importance of dilatation, because many parents refuse to accept the use of the knife. He recalled a case in which a child of six years was relieved from choreic symptoms by dilatation after circumcision had been strongly opposed.

Professor Charles Warrington Earle, of Chicago, Illinois, read a paper entitled

AN INVESTIGATION TO DETERMINE WHETHER THE ABSENCE OF SEWERAGE AND OF WATER-POLLUTION DIMINISH THE PREVALENCE AND SEVERITY OF DIPHTHERIA.

He presented the results of a study of the causes of diphtheria in localities remote from sewer-gas influence in the less thickly populated Western States and Territories. He had received communications from a large number of physicians widely scattered over this great region.

His conclusions are briefly summarized as follows:

1. Diphtheria occurs in the mountains and

prairies of the great Northwest with the same malignancy as in the East.

2. And with equal virulence in vicinities remote from sewers.

3. When once introduced, the residents of damp sod houses suffer with marked severity.

4. The infection is transported thousands of miles in some unrecognized vehicle.

5. There is abundant testimony that it follows the lines of railroads and steamers, making it imperative to increase the watchfulness and improve the methods of disinfection by railroad and steamboat companies.

6. The desirability of legal enactments obliging people of all classes to recognize their responsibility in regard to the control of contagious diseases.

Dr. W. Foster, of Putnam, Connecticut, reported the apparent connection between diphtheria and exposure to filth in two cases occurring in a town of 7,000 inhabitants, otherwise entirely free from the disease. The boys affected had been playing almost constantly for several days in and about a barn, the cemented cellar of which received sink-water and house-refuse as well as manure. Isolation and thorough disinfection prevented the spread of the disease.

Professor F. E. Waxham, of Chicago, Illinois, believed that diphtheria is due rather to the absence of sewers than to their presence. An impure atmosphere and the presence of filth and decomposing vegetable matter are important factors. Absolute cleanliness, which, of course, includes disinfection, is our best resort.

SECTION ON DENTAL AND ORAL SURGERY.

Jonathan Taft, M.D., of Cincinnati, Ohio, President.

Secretaries.—A. M. Dudley, M.D., of Salem, Massachusetts; F. H. Rehwinkel, M.D., of Chillicothe, Ohio.

FIRST DAY—AFTERNOON SESSION.

Professor Taft, the president, welcomed those present.

Drs. I. V. Metnitz, of Austria; B. McLeod, of Scotland; and Greevers, of Holland, replied in behalf of the countries they represent.

The president then delivered his address, in which he reviewed the progress of dentistry in the last fifty years, and concluded by saying that although the past record was an excellent one, yet the goal is not yet reached. He urged the profession, through those present, to work in all earnest for a yet higher standard.

Dr. R. J. Porre, of Cincinnati, Ohio, read a paper on

CHRONIC PYÆMIA FROM DENTAL ORIGIN.

The history of the first case was as follows: The patient, male, good constitution and habits, suffered for the last thirty years from neuralgia, besides having constantly recurring furuncles and eruptions in various parts of the body, which would often for months become running abscesses. He experienced burning and itching eruptions of hands and feet, which would finally change to stubborn ulcerations. His bowels were either stubbornly constipated or exhaustingly loose. He suffered from frequent rigors and febrile attacks of varying intensity, profuse night-sweats, retention of urine, serious constriction of the bowels and urethra. Lancing pains darted from the maxilla of right side to bowels, bladder, limbs, hands and feet, or to whatever part that was locally affected at the time. This latter peculiarity, together with the discovery of a little pus exuding from the locality of the wisdom-tooth, led to a final correct diagnosis of his case.

The tooth referred to was extracted, and a speedy and complete recovery followed. As other sources leading to pyæmia and having their starting-point in the oral cavity may be mentioned pyorrhœa alveolaris, alveolar abscess, abscess of the antrum, and dental caries.

Dr. Porre related ten other cases similar to the above, which all yielded to the simple remedy of removing the offending teeth.

Professor J. Frank Lydston, of Chicago, Illinois, said that both physicians and dentists should appreciate the important relation which morbid conditions of the mouth and jaws, and especially those which may be produced by septic absorption, bear to different general conditions. Septic matter is quite generally found about the roots of teeth, and may, under favoring circumstances, be absorbed into the blood, and there produce disturbances of greater or less degree.

The paper was further discussed by Drs. Walker, of London, England; Barrett, of Buffalo, New York; W. J. Younger, of San Francisco, California, and Chance, of Oregon.

SECTION ON OPHTHALMOLOGY.

J. J. Chisolm, M.D., of Baltimore, Maryland, President.

Secretaries—A. Alt, M.D., of St. Louis, Missouri; J. A. White, M.D., of Richmond, Virginia, and R. L. Randolph, M.D., of Baltimore, Maryland.

FIRST DAY—AFTERNOON SESSION.

Professor Chisolm, the President, on taking the chair, expressed his high appreciation of the honor conferred upon him, and referred in feel-

ing terms to the regret felt at the absence of Professor E. Williams, of Cincinnati, the unanimous choice for the position. He referred to Professor Williams as the pioneer in ophthalmology, the first of the specialties to branch out as a separate department of medical science, and the difficulties he had met with when devoting himself to diseases of the eye and ear exclusively. To-day it is acknowledged that progress in general medicine is attained only through studies and researches in special departments, and every organ has its investigator. The assembly of this International Medical Congress is, to a large extent, an assemblage of eminent specialists from great distances, at personal expense, to interchange their thoughts and conclusions upon various subjects. He referred to the vastness of the subject of the human eye alone, and that there is no disease of the eye so thoroughly mastered that further information is not desired. Operations are still far from perfect, and the origin and nature of glaucoma is not clearly defined.

The microbic element in eye affections was also mentioned, and the intimate relation of eye diseases to distant reflexes.

In concluding, he repeated his welcome to the members of the Section as friends and co-workers in the department of ophthalmology.

The first paper of the session was on

EYE TROUBLES IN THEIR RELATION TO OCCIPITAL DISEASE,

by Dr. A. Mooren, of Düsseldorf, Germany.

Dr. Mooren introduced his subject by a recital of the initial observations of Huguenin and the experimental researches of Munk, who removed the visual spheres in the occipital lobe of the dog and found that it rendered the animal blind, but left intact all the functions and movements not dependent on vision. Then, after referring to the clinical observations of Hirschberg, Pooley, Pflüger, Hughlings-Jackson, Gowers, and others, he entered into analysis of 42 different cases of his own in which hemianopsia was present, 14 of which were on the right side, 19 on the left side, 4 temporal and 5 nasal restriction. The causes were various.

He found that hemianopsia dependent on occipital lobe disease is not complicated with mydriasis or capillary apoplexies on the insertion of the optic nerve. It is the merit of Willbrand to have collected the different observations made in this sense. He formulates as follows:

The color-sense is to be placed on the most exterior cortex of the occipital lobe; beneath this another layer, the center for acuteness of vision. In a third layer beneath this again there exists next to Gratiolet's visual radiations, the light-

center, *i. e.*, the center for visual field. Destruction of the upper or color-perception layer may take place without affecting the underlying layers, as is demonstrated by the observations of Bjernum and Samelsohn, and Dr. Mooren's observations of the loss of color-perception in his cases without necessary impairment of vision, are in accordance with those of previous observers.

He referred to the determination by Nothnagel of the occipital limits of pathological changes, by means of the method of the smaller focus. After the observations of Haab, Huguenin, Feré and Seguin, this neurologist places the center of optic perception in the cortex of the cuneus and first occipital convolution. This is confirmed by sections made by Curschmann.

Dr. H. Gradle, of Chicago, Illinois, mentioned a case which appeared to him to have a bearing on the subject under discussion. A child, during an attack of what was supposed to be scarlet fever, had pain in the back of the head, which was drawn backward. Some time afterward, when seen by the narrator, it appeared to be blind, but the pupils were both quite active to light. Treatment by potassium iodide appeared to produce a beneficial result, and when last seen vision seemed to be completely restored.

The President presented in this connection a case of blindness with occipital disease. Some years ago pain began to be felt behind the left ear, shortly followed by swelling in the same region. The swelling gradually increased, and now a softish tumor of considerable size can be seen and felt, over which the bone has been absorbed. In the later period of its growth the hearing in the left ear became dull, and the right eye became blind. He could still read with the left eye. At that time both optic nerves appeared white and atrophic, one not more than the other. The pain has now almost disappeared, but he has only perception of light in the left eye.

The discussion was also participated in by Dr. Dickinson, of Missouri, Dr. Beerman, and others.

Dr. Ole Bull, of Christiania, Sweden, read a paper entitled

PATHOLOGICAL CHANGES IN THE RETINAL VESSELS.

He had seen eighteen cases of disease of the retinal vessels in six thousand five hundred cases of eye disease. In some there were emboli, in others what appeared to be constriction or narrowing of the retinal vessels. He noted in some of the cases occasional spasmodic constriction of the arteries, with resulting anæmia and loss of vision, with some recoveries of vision, as distin-

guished from true emboli. Thrombus and gumma were referred to as causes of pathological changes in the vessels, in some cases distention, in others constriction, resulting. In all cases of organic change, serious impairment of vision or total blindness resulted.

Professor P. D. Keyser, of Philadelphia, questioned as to whether in many of the cases it was a true embolism or a contraction of the arteries. A case which came to him blind from what appeared to be embolism, recovered good central vision, but had a field only two inches square. The treatment was galvanism. He had questioned whether, if the treatment had been commenced earlier, the vision and field might not have been entirely restored.

Dr. A. Heyl, of Philadelphia, Pennsylvania, questioned as to whether it was embolism or a loss of blood-tension, as in a case of blindness after post-partum hæmorrhage, where the blood-amount is much lessened and tension much diminished. He also believed that one element in the blood-tension is the contractile force of the endothelium of the blood-vessel. When the tension is diminished this force comes into play, especially in the retinal artery as a terminal vessel without anastomosis. He cited a case of sudden loss of vision in a young lady with no heart or kidney disease, not especially anæmic, but of a somewhat waxy cast of complexion. It looked like embolism. Treatment was by palpation or percussion over the frontal and temporal adjacent region, by means of a rubber ball on a stick, and had seemed to be beneficial. He also thought that acute glaucoma might be a congestion caused by a sudden disturbance of the same nature in the circulatory system.

Dr. Bull closed the discussion by expressing his belief that many of these troubles are due to trophic affections, with no disease or affection of any organ elsewhere.

The paper by Professor E. Smith, of Detroit, Michigan, on "Treatment of Abscesses and Ulcerations of the Cornea by Jequirity," was postponed till a later session by unanimous consent.

Dr. Leartus Connor, of Detroit, Michigan, read a paper entitled

HOT WATER IN THE TREATMENT OF EYE-DISEASES.

Dr. Connor stated that that remedy was sought after which would most certainly induce, first, good feeding of the tissue; second, removal of morbid products and morbid agents; and third, the promotion of speedy repair. Such an agent is hot water in a great variety of eye affections such as mild catarrhal and phlyctenular conjunc-

tivitis, cornetitis, affections of the sclera and iris, and even, in some cases, retinal hyperæmia. In iritis, where the pupil refuses to respond to mydriatics, hot water will exert a marked effect in assisting dilatation of the pupil. Similar beneficial results in reducing inflammatory action had been noticed by him in catarrhal and purulent ophthalmia, in relieving the pain in glaucoma and acute dacryocystitis.

There is no morbid state of the eye on which it may not exert beneficial influence. The results reported by divers observers vary with the different modes of using it. The water should be as hot as the end of the forefinger will bear without discomfort. The method preferred by the essayist was to take a common tumbler, fill it to the brim with hot water, and inclining the head slightly forward, apply the rim of the tumbler to the side of the nose and to the brow and cheek about the eye, which brings the eye itself actually into the water. The amount of water loses its heat slowly, and does not require frequent changing, and the eye may be kept in hot water with very little trouble for hours at a time. Antiseptics may be added, and the remedy is easily attainable with means for application. It is safe without the watchful care of the physician, while moist heat by any solid substance, as poultices, should never be used except under the direct supervision of the attendant.

Poultices are unsafe and unreliable means of applying heat to the eye; also dirty, especially on denuded surfaces. Compresses are less objectionable, and may be used as a substitute for hot water.

Local effects: 1. Contraction of blood vessels in and about the eye. Controls hæmorrhages better than cold water and blanches the tissues in conjunctivitis, blepharitis, phlyctenulæ; and after the use of hot water the ophthalmoscope shows the retinal vessels to be reduced in size. In one case where drawings were made of the vessels before and after, the difference was very marked, and the relief of retinal congestion and improvement of vision very noticeable.

The temperature of the water must vary with the sensation of the patient. The tissues should not be exhausted.

2. Hot water will wash away or destroy all morbid secretions or excretions. At a temperature of 132° F. it destroys the bacillus of anthrax and many others, and many eyes can bear a somewhat higher temperature.

3. It promotes the healthful activity of reparative tissue or protoplasm.

4. It exerts direct power in relieving muscular fatigue and spasm.

Professor Dudley S. Reynolds, of Louisville, Kentucky, asked whether the reader of the paper used hot water, as he had stated, immediately after a strabismus-operation, to increase the effect by causing contraction of the cut muscle.

In reply it was stated that contraction was stimulated in the muscle antagonistic to the cut muscle, and the effect increased in that way.

Dr. J. L. Thompson, of Indianapolis, Indiana, defended the poultice as used in affections of the anterior part of the uveal tract and sclera. He had had excoriations produced by hot water, and then had to use poultices. Chamomile or slippery elm, in cheese cloth, was with him the preferable form.

Professor P. D. Keyser, of Philadelphia, Pennsylvania, spoke of DeWecker's use of hot water a long time ago in conjunctivitis diphtheritica, as he said, to soften the tissues and hasten absorption. The speaker had found diphtheritic conjunctivitis rare in this country, but membrane on the conjunctiva not so uncommon. He had used hot compresses over the eyes, and kept them hot by spraying with steam directed on the compresses from an ordinary kettle by a forked tube. The compresses should be applied over the eyes alone, and not over the frontal sinus between the eyes.

Dr. H. Power, of London, England, was in favor of dry poultices rather than moist ones. He has chamomile flowers or hops heated in a dry kettle, stirred till hot through, then applied in a bag or pillow to the part affected. He objects to the use of the steam from the kettle.

Professor Eugene Smith, of Detroit, Michigan, fully agreed with Dr. Power. He thinks moist heat not advisable in ulcerative keratitis.

Dr. P. T. Huckins, of Los Angeles, California, believes in the use of heat in these affections, but finds that the length of time during which the heat should be applied has not been spoken of.

Dr. A. Blitz, of Minneapolis, Minnesota, has never seen bad results, in all cases of conjunctival or uveal inflammations, from the use of hot water.

Dr. Abadie, of Paris, France, thinks that not so much stress is now laid upon the employment of hot water in many eye troubles. It has gone out of use in phlyctenular conjunctivitis, and purulent and croupous ophthalmia. In corneal affections, internal medication and proper antiseptic applications are far superior. In infectious corneal ulcers, he uses iodoform powder and antiseptic washings. On the other hand, in iritis with much pain hot applications are good, but morphia, leeches, and internal administration of quinia sulphate, salicylate of soda, etc., are often all that is necessary.

Dr. Herbert, of Philadelphia, Pennsylvania, wished to call attention to a mode of applying heat that had not been mentioned, that by means of irrigation; the hot water flowing over the inflamed surface was thus kept at a constant temperature.

Professor A. W. Calhoun, of Atlanta, Georgia, spoke of an apparatus which he had sometimes used, a thin rubber bag of proper size filled with hot water and applied to the eye. It could have an inlet pipe to supply fresh hot water, and an outlet to carry away the cooler portions.

Professor Hotz, of Chicago, Illinois, remarked that the diversity of modes of application of heat, with such uniformly good results, tends to show that there must be a principle underlying the mere material, or the manner in which it is applied. He should lay down the principle, therefore, to apply heat where there is a stagnation of blood to be broken, and it will reduce pain and promote recovery. The feeling of comfort that the patient experiences is the best gauge by which to tell the proper temperature in each particular case.

SECTION ON PUBLIC AND INTERNATIONAL HYGIENE.

Joseph Jones, M.D., New Orleans, Louisiana, President.

Secretaries.—Dr. Castellanos, Dr. Felix Formento, and Dr. J. R. Le Monnier, of New Orleans, Louisiana; Dr. B. D. Taylor, of Columbus, Ohio, and Dr. Walter Wyman, U.S. Marine Hospital service.

FIRST DAY—AFTERNOON SESSION.

Professor Jones, the President, delivered an address on the general subject of hygiene, which was the only subject considered, other than reports of committees.

He considered the question under three heads—domestic, national, and international hygiene. The first related to families and households; the second included the organization of boards of health and sanitary administration; the third, vital statistics and race distinctions.

GENERAL SESSION.

SECOND DAY—TUESDAY, SEPTEMBER 6TH.

The congress was called to order at 10 A.M. by the president.

Professor Austin Flint, M.D., LL.D., of New York, delivered a general address on

FEVER, ITS CAUSES, MECHANISM AND RATIONAL TREATMENT.

After discussing the subject of animal heat, the following conclusions were reached by the author:

1. Fevers, especially those belonging to the class of acute diseases, are self-limited in their duration, and are due each one to a special cause, a micro-organism, the operation of which ceases after the lapse of a certain time.

2. We are as yet unable to destroy directly the morbid organisms which give rise to continued fevers; and we must be content, for the present, to moderate their action and to sustain the powers of resistance of patients.

3. The production of animal heat involves oxidation of parts of the organism or of articles of food, represented in the formation and discharge of nitrogenized excrementitious matters, carbonic acid and water.

4. As regards its relations to general nutrition and the production of animal heat, water formed in the body by a process of oxidation is to be counted as an excrementitious principle.

5. Fever, as observed in the so-called essential fever, may be defined as a condition of excessive production of heat, involving defective nutrition or inanition, an excessive production and discharge of nitrogenized excrementitious matters and carbonic acid, with waste and degeneration of the tissues, and partial or complete suppression of the production and discharge of water.

6. Aside from the influence of complications and accidents, the ataxic symptoms in fevers, the intensity and persistence of which endanger life, are secondary to the fever, and are usually proportionate to the elevation of temperature. These symptoms are ameliorated by measures of treatment directed to a reduction of the general temperature of the body.

7. The abstraction of heat by external cold and the reduction of temperature by antipyretics administered internally, without affecting the special cause of the fever, improve the symptoms which are secondary to the pyrexia.

8. In health, during a period of inanition, the consumption of the tissues in the production of animal heat is in a measure saved by an increased production and excretion of water.

9. In fever, the effects of inanition, manifested by destruction and degeneration of tissues, are intensified by a deficient formation and excretion of water.

10. Alimentation in fever, the object of which is to retard and repair the destruction and degeneration of tissues and organs, is difficult mainly on account of derangements of the digestive organs; and this difficulty is to be met by the administration of articles of food easily digested, or of articles in which the processes of digestion have been begun or are partly accomplished.

11. In the introduction of hydrocarbons,

which are important factors in the production of animal heat, alcohol presents a form of hydrocarbon which is promptly oxidized, and in which absorption can take place without preparation by digestion.

12. Precisely in so far as it is oxidized in the body, alcohol furnishes matter which is consumed in the excessive production of heat in fever, and saves destruction and degeneration of tissue.

13. The introduction of matters consumed in the production of heat in fever diminishes, rather than increases, the intensity of the pyrexia.

14. As the oxidation of alcohol necessarily involves the formation of water and limits the destruction of tissue, its action in fever tends to restore the normal processes of heat-production, in which the formation of water plays an important part.

15. The great objects in the treatment of fever itself are to limit and reduce the pyrexia by direct and indirect means; to limit and repair destruction and degeneration of tissues and organs by alimentation; to provide matters for consumption in the abnormal production of heat, and thus to place the system in the most favorable condition for recuperation after the disease shall have run its course.

SECTION ON ANATOMY.

SECOND DAY—MORNING SESSION.

The first paper read was on

THE ANATOMY AND SURGICAL IMPORTANCE OF THE PERI-RENAL CELLULO-ADIPOSE TISSUE AND RENAL CAPSULE,

by L. H. Dunning, M.D., South Bend, Indiana. After outlining the position of the kidney and its anatomical relations, he then called attention to a double form of the peri-renal cellulo-adipose tissue, which, he thought, was a wise provision of nature and of great surgical importance. He explained the anatomy of the renal capsule, the arrangement of the fat, and the position of the cellular tissue, thus preventing the stretching of the nerves and the accompanying pain. In speaking of the capsule, he thought it acted as a barrier to prevent inflammation to and from the kidney, and also furnished a surface for the attachment of the peri-renal cellulo-adipose tissue. The surgical importance of this peri-renal cellulo-adipose tissue and of the renal capsule lay in the fact that one or both were often subject to inflammation and morbid changes, and that they were often invaded by the surgeon. Tumors often occurred within or upon the fibrous cellulo-adipose tissue of the kidney. The question was now, if there were real danger attendant upon

these invasions into the renal territory. In the three most frequent operations upon the kidney—nephrorrhaphy, nephro-lithotomy, and nephrectomy—the peri-renal cellulo-adipose tissue was cut through. The adipose and fibrous tissue, which was very vascular in this region, was very liable to inflammations. In operating, all loose portions of fat should be removed and the fibrous capsule, or even a small portion of the cortical portion of the kidney, might be left. The author asked also what should be done with the cellulo-adipose structure and the fibrous capsule left behind. His supposition, from the careful observation of several cases and a second operation on one, that after removal of the kidney the cavity was partially collapsed and filled with granulations, and this scar-tissue took the place of the kidney. These fibrous bands continued to contract, displacing the surrounding tissue. His final opinion was to remove all tissue when it was not too vascular.

The President spoke of the important point mentioned by Dr. Dunning, in regard to the close connection between the movements of the diaphragm and of the abdominal organs. He was of the opinion that the whole kidney could be destroyed and the capsule be left.

Dr. W. T. Oppenheimer, of Richmond, Virginia, then exhibited several photographs of

AN APPARATUS FOR THE TREATMENT OF FRACTURES OF THE SURGICAL AND ANATOMICAL NECK OF THE HUMERUS.

He spoke of the great difficulty in keeping the fractured extremities of the bone in apposition, and thought that his apparatus covered the three necessities of extension, counter-extension, and fixation. The apparatus consisted of strong iron bands, which were fastened around the thorax by means of plaster of paris, and which extended to the fractured arm, holding it firmly at the shoulder, upper arm, and forearm. He had used it in several severe cases of fracture of the neck of the humerus, and suggested using it in fracture of the clavicle and in excision of the elbow joint.

The President asked when passive motion was commenced.

Dr. Thomas, of Pittsburg, Pennsylvania, thought it did not matter what apparatus was used, just so the arm was held out from the body. He admitted, however, that he had never treated a case in that way, but thought it formed the principle of Dr. Oppenheimer's apparatus.

Dr. Oppenheimer replied that in about five weeks passive motion was commenced. He said when the plaster jacket was put on well, and the bands were strong, that no movement of the body could cause crepitation.

The President asked if a corset of leather or of other material could not be used instead of the plaster of paris, which, in his opinion, seemed a little clumsy for such treatment. He also thought that in using crepitis there was danger of tearing the periosteum, and thus cutting off the blood-supply of the fractured ends.

AFTERNOON SESSION.

Professor Pancoast, the president, after greeting the members of the section, began by saying that anatomy was sometimes called a dead study, but he thought it was a live subject. He thought that many advances had been made since the last meeting of the congress, and especially in the anatomy of the brain. Great progress had also been made in microscopical anatomy. The study of the electrical sensibility of the brain and the operations for the cure of epilepsy by Hughlings Jackson, Ferrier, and others had proved itself to be very successful. The ability to localize brain-troubles by the part paralyzed was evidence of great practical advances in the study of brain-surgery. He then related a very interesting case of his own of a gun-shot wound of the brain which he had successfully treated by aid of a careful study of the symptoms and the use of the induction balance. He did not think that anatomy made it sufficiently distinct that all muscles from one bone to the bone below were articular muscles. This was shown in a paralysis of the deltoid muscle making a simulated dislocation. He defined a joint at that division of the skeleton made to deaden shock and cause motion. He spoke of the low vitality of the joint-cartilage and the snowy-white membrane observed on the articular cartilage in white swelling. He did not altogether approve of extension and counter extension in diseased joint, and thought that rest was important and that it was sufficient to prevent the rubbing together of the diseased surfaces. He believed that there were only four metacarpal bones in each hand, and referred to the development of the hand and foot as a proof. He mentioned several anomalies of muscles which had come under his observation, such as two heads to the latissimus dorsi, and particularly of an unequal development of the soleus and gastrocnemius, wherein the latter muscle was too long. In certain forms of talipes with this muscular condition a cutting of the tendo Achillis to effect a cure. The tense soleus had to be alone divided by slipping the knife between the two muscles and cutting the soleus. He thought that the deep fasciæ were not only for protection but acted as ligaments. He mentioned fractures of the coronoid process of the ulna and their causes, and was of the opinion that muscular contraction of the

brachialis anticus could not break the coronoid process because the latter was covered by the anterior ligament of the joint. He thought the word anastomosis as applied to nerves and tissue incorrect, and should only be used when speaking of vessels. He explained the direction of the nutrient arteries in the long bones of the extremities and the peculiar position of the fœtus in utero causing their direction, and the importance of understanding the entrance of these nutrient vessels into the bones in some fractures. He thought many names might be simplified, and spoke of the recent study of the skull and spinal column. He concluded by quoting the authorities on the advances made in the study of anatomy in different parts of the world.

Dr. Albert B. Strong, of Chicago, Illinois, then read a paper on

FROZEN SECTIONS OF THE MALE PELVIS, SHOWING RELATIONS OF PERITONEUM TO RECTUM, BLADDER AND THE MEDIAN LINE OF ABDOMINAL WALL, WITH SPECIAL REFERENCE TO SUPRAPUBIC CYSTOTOMY.

He exhibited some very well-executed reproductions of photographs of elaborately prepared specimens. He found air better than water to lift the bladder and its peritoneal reflection out of the pelvis. He found that distending the rectum first and the bladder afterward, and moderately distending both, met the indications the best.

Dr. Gervais, of Belgium, always punctured the bladder when the patient was standing and the bladder filled.

Professor F. C. Schaefer, of Chicago, Illinois, then read a paper entitled

ANATOMICAL POINTS INVOLVED IN THE LOSS OF COMPLETE SCALP, INCLUDING ONE EAR AND THE GREATER PORTION OF THE EYELIDS.

This paper was founded upon a case in which a girl in a factory was caught by the hair and scalped. He had not been able to find many such cases on record, but was of the opinion that the results heretofore obtained had not been very successful. He at first attempted, against his own judgment, to replace the scalp, but was unsuccessful; he then began skin-grafting, with which he had obtained very satisfactory results, which his excellent photographs of the case proved. He was of the opinion that small grafts placed close together, were better than large ones; that grafts with the subcutaneous tissue were the best kind; that auto-dermal grafts were better than dermal grafts; that grafts from a person near the same age as the patient were more successful. He thought that the grafts so placed were probably nourished by osmosis. He found that grafts in a new wound grew much faster than those in an old one.

Dr. J. A. Murphy, of Chicago, Illinois, emphasized the importance of taking dermal grafts with plenty of subcutaneous tissue.

The President thought that grafts taken from the scalp itself might have grown successfully.

Professor Schaefer, in closing, said that in his case the machinery had so mangled the scalp that it was entirely bloodless when examined. He also drew the distinction between skin-grafting and a plastic operation, which was, of course, an entirely different thing.

SECTION ON DENTAL AND ORAL SURGERY.

SECOND DAY—MORNING SESSION.

Dr. William Carr, New York, N. Y., gave a clinic on the

TREATMENT OF FRACTURES OF THE MAXILLÆ WITH MODIFIED INTERDENTAL SPLINT.

The majority of fractures of the inferior maxilla occur in the body rarely at the symphysis menti, but usually directly anterior or posterior to the mental foramen. A noticeable fact in connection with these fractures is that the victim rarely applies for treatment for several days succeeding the injury. He realizes that some of his teeth are loosened and also that he is painfully bruised, but does not seek surgical aid until he becomes alarmed by the increased inflammatory condition of the parts. There is but little difficulty in establishing a correct diagnosis, as usually the following symptoms are present—great pain in the effort to open and close the mouth, swelling, crepitus, inflammation, inability to masticate, and marked irregularity of the teeth.

Treatment.—It is identical with that of other fractures, namely, to bring the parts into apposition and retain them firmly until ossification is completed. For treatment of fractures of the maxillæ there is nothing superior to the interdental splint. When properly adjusted, speedy union may be secured without deformity of the jaw or irregularity of the teeth. Before taking the impression a careful examination of the parts should be made. Loose teeth and spicula of bone should be removed, and the parts should then be brought as nearly as possible to their normal position. An accurate impression should be made with impression compound or wax. The material used should be as warm as the patient can bear it, in order to prevent unnecessary pain, and also to prevent further displacement of the parts. The splint is made of vulcanite and covers all the teeth of the lower jaw, and all the teeth posterior to the canine in the upper jaw—leaving a space of about three or four lines through which the patient may receive nourishment.

Small holes are drilled in the splint over the grinding surface of each molar for the purpose of ascertaining whether its adjustment is proper.

The splint should first be adjusted to the sound jaw, then gently bring the fractured jaw into position until it has passed about two-thirds of the length of the teeth—then with a quick, firm motion bring the parts into position. Next apply a four-tail bandage, which should be retained from three to five days; after this time, in the majority of cases, it may with safety be removed during the day, but should be replaced at night until the removal of the splint. The patient should be furnished with an ordinary rubber syringe, and instructed to keep the mouth thoroughly cleansed. For disinfectants I use peroxide of hydrogen, three per cent. solution, or a solution of bisulphate of soda in the proportion of 3 j to ʒ i, of water.

In ordinary cases the splint should be retained for three or four weeks, according to the physical condition of the patient—unless unforeseen complications should arise. The application of the splint, combined with thorough cleanliness, will usually be all the treatment required.

The advantages, besides those previously stated, are that the patient experiences but little pain and inconvenience, and can, as a rule, attend to his business almost immediately after the splint is applied.

It is not necessary that all the teeth, nor, indeed, that any should be present in the mouth in order to make this splint serve its purpose. In the first case the rubber can be made to take the place of the missing teeth, and in the latter case a perfect adaptation of the splint to the alveolar ridges can be secured, and will be found to keep the parts in perfect apposition.

Should it be deemed advisable to place a splint in position within an hour or two after seeing the case, one can be constructed entirely of ordinary gutta-percha, with just enough wire inside to stiffen it. Dr. Carr demonstrated this last method—it is very simple and can be made by any surgeon.

A number of gentlemen examined the principle and pronounced it very satisfactory in every way, the main points being its simplicity of construction, its effectiveness, and the ease with which it is adjusted and worn by the patient.

Dr. E. Brasseur, of Paris, France, read a paper on

THE USE OF AIR IN DENTAL THERAPEUTICS.

The reader urged that the ordinary means, such as bichloride and biniodide of mercury and carbolic-acid crystals, for destroying microbes in the oral cavity and, especially, in carious cavities

of teeth should be supplemented by the use of hot air.

Dr. C. A. Brackett, of Newport, Rhode Island, discussed the paper at some length, laying considerable stress on the efficacy of crystallized carbohc acid as a germicide in carious cavities in teeth,

Other discussions followed, by Professors James Truman and W. H. Morgan.

AFTERNOON SESSION.

Dr. Junius E. Cravens, of Indianapolis, Indiana, read a paper on on

THE MANAGEMENT OF PULPLESS TEETH.

This system is based on the proposition that a pulpless tooth is not necessarily dead. The pulp being devitalized, the tooth still retains life through its pericementum. The usual course of treating pulpless teeth with escarotics and irritants causes irritation and final destruction of the pericementum, and the result is that the tooth, instead of being preserved, will act as a foreign body, and will be thrown off by nature through abscesses; or, worse still, will lead to no end of nervous derangements.

The treatment suggested by the reader is to thoroughly cleanse the pulp-canal, and at once hermetically seal it with tin-foil.

The paper was discussed by Professor Thomas Fillebrown, of Portland, Maine. He did not agree with the essayist in the method outlined in the paper. The doctor gave a short synopsis of the method he employs in treating pulpless teeth, which, by the manner in which it was received by the section, seemed to be the one generally pursued.

Professor A. W. Harlan, of Chicago, Illinois, followed, and likewise objected to the views expressed by the essayist. A dead pulp produces no irritation in the canal; the disease which it causes is beyond. If you could mechanically displace an odor—which the speaker denied—and should then fill the root canal without any disinfection, disaster would inevitably follow unless there should be a fistulous outlet.

Dr. W. C. Barrett, of Buffalo, New York, in discussing the paper, stated whether viewed from the standpoint of pathology or etymology the paper is alike remarkable. That such a mass of absurdities could be presented at a meeting of the world's representatives in dentistry is to me astounding, and I protest against its acceptance as the standard by which to judge the intelligence of American dentists. Why the exploded dogmas of twenty-five years since should be gravely and in all sincerity presented at such a meeting as this, is, I must confess, something for which I was

not prepared. The assertion that a closed chamber in which exists the septic debris and the products of decomposition of a tooth-pulp should not be opened and evacuated, I can scarcely believe is made in calm earnest. The essayist has exhibited his complete ignorance of the progress of the past century.

Modern antiseptic pathology has taught us certain facts, and among these is the knowledge that the first step in the treatment of aseptic cavities is complete drainage; second, disinfection and the removal of all the products of disorganization; third, destruction of septic organisms; and finally, the complete sealing of the cavity against further infection. These comprise the essential steps in the treatment of septic root-canals. I will not insult the intelligence of those present by presuming to enlarge upon this and by going into the details of treatment, for this is not a body of tyros. But I do object to a consideration of the subject from the low standpoint of this extraordinary paper.

Professor T. E. Weeks, of Minneapolis, Minnesota, read a paper on

MATRICES AS ADJUNCTS IN FILLING TEETH.

The essayist reviewed the different appliances for simplifying what would otherwise be very laborious operations. A perfect matrix should be simple in construction, cheap, easily adapted, and not too stiff, so that when applied it will yield just enough to allow sufficient gold to pass beyond the walls of the cavity for a good finish.

Professor F. H. Guilford, of Philadelphia, Pennsylvania, in a few brief remarks, indorsed the sentiment expressed in the paper.

SECTION ON CLIMATOLOGY AND DEMOGRAPHY.

SECOND DAY.

The section met at 11 A.M. The following resolutions, submitted by the president of the section, were discussed, and, after verbal amendments, unanimously adopted:

Resolved, That in the opinion of the section on Medical Climatology and Demography of the Ninth International Medical Congress, assembled in the city of Washington, September 5-10, 1887, it is important there should be established in every country a national department, bureau, or commission for the record of vital statistics upon a uniform basis, to include not only accurate returns of births and deaths, but the results of collective investigation by government officials of facts bearing upon the natural history of disease as manifested among men, women, and children separately, especially with regard to climatic and other discoverable causes of the several forms of disease—race, occupation, and residence being made matters of record—that necessary prevent-

ive measures may be determined and enforced for the preservation of the public health.

Resolved, That the Secretary-General be requested to have the expression of opinion communicated to the several governments.

Professor Charles Denison, of Denver, Colorado, read a paper on

THE PREFERABLE CLIMATE FOR PHTHISIS.

The paper was elaborately illustrated by maps, diagrams, and tables. Professor Denison believes that the climate to be preferred for the great majority of consumptives in the United States varies from between fifteen hundred feet elevation in the north in winter to ten thousand feet in the southern portion in summer. Certain contraindications exist against sending consumptive patients to high altitudes. The most prominent of these are advanced age of the individual; an excitable, nervous temperament; valvular lesions, with rapid action of the heart; marked and extensive emphysema; pneumothorax and hydro-pneumothorax; active pneumonia or hæmoptysis; high bodily temperature; extensive involvement of lung-tissue, and similar conditions.

He takes the affirmative side of the following five divisions named in the order of their relative importance: (1) Dryness as opposed to moisture; (2) coolness or cold preferable to warmth or heat; (3) rarefaction as opposed to sea-level pressure; (4) sunshine as opposed to cloudiness; (5) variability of temperature as opposed to equability.

Dr. John William Moore, of Dublin, Ireland, then read a paper on

THE SEASONAL PREVALENCE OF PNEUMONIA.

The conclusions—pneumonia has claims to consideration as a specific fever on the following grounds:

1. Its not infrequent epidemic prevalence, which is beyond dispute.
2. Its proved infectiveness.
3. Its occasional pathogenic origin in many cases.
4. Its mode of onset or "invasion," which exactly resembles that of the recognized specific fevers.
5. The appearance of constitutional symptoms before the development of local signs or symptoms.
6. The critical termination of the febrile movement in uncomplicated cases.
7. The presence of local epiphenomena in connection with the skin, as herpes, taches bleuâtres, and desquamation.
8. The development of sequelæ in some cases,

such as nephritis, followed by renal dropsy and other conditions.

9. The discovery of a probable pathogenic bacillus, to which analogy points as pathognomonic.

Dr. Moore concludes his paper in these words: "The day is seemingly not far distant when we shall speak of pneumonic fever in precisely the same way as we use the term enteric fever at present; that is, to signify a zymotic or specific blood-disease, manifesting itself after the lapse of a certain time—the period of incubation—by physical phenomena, objective and subjective, connected in this instance with the lungs."

THE RELATIONS OF CERTAIN METEOROLOGICAL CONDITIONS TO ACUTE DISEASES OF THE LUNGS AND AIR PASSAGES.

Dr. Henry B. Baker, of Lansing, Michigan, read a paper on the above subject, which was illustrated with diagrams that showed curves for influenza, tonsillitis, croup, bronchitis, and pneumonia, which follow the curve for atmospheric temperature with surprising closeness.

He suggests that the explanation of the causation of these diseases has not been grasped before, because one of the principal facts has not been apprehended, namely, the fact that cold air is always dry air; on the contrary, it has been generally stated that when these diseases occur the air is cold and damp. He explains that while the cold air is damp relatively, it is always absolutely dry, and he thinks that its bad effects on the air-passages are mainly through its drying effects, which can best be appreciated by reflecting that each cubic foot of air inhaled at the temperature of zero, Fahr., can contain only one-half grain of vapor, while when exhaled it is nearly saturated at a temperature of about 98° F., and therefore contains about eighteen and one-half grains of vapor, about eighteen grains of which have been abstracted from the air-passages. Thus cold air, falling upon susceptible surfaces, tends to produce an abnormal dryness which may be followed by irritation and suppuration. He claims that coryza is sometimes so caused. Under some conditions the nasal surfaces are not susceptible to drying, the fluids being supplied in increased quantity to meet the increased demand made by the inhalation of cold air. In that case an unusual evaporation of the fluid leaves behind an unusual quantity of non-volatile salts of the blood, such as sodium chloride, and an unusual irritation results; he thinks influenza is the name commonly given to this condition.

The effects which the inhalation of cold air have on the bronchial surfaces depend greatly

upon how the upper air passages have responded to the increased demand for fluids; because if they do not supply the moisture, it must be supplied by the bronchial surfaces; in which case bronchitis results. Finally, if the demands for moisture made by cold air are not met until the air cells are reached, pneumonia is produced.

He refers to statistics which he has published, showing that even the rise and fall of such contagious diseases as scarlet fever, diphtheria, and small-pox follow the same laws shown to control in the acute diseases of the air passages, and he offers the explanation that the irritations and exudations in the air passages caused by the inhalation of cold, dry air supply a nidus for the contagia, and are thus the predisposing causes of those diseases. As to whether or not pneumonia is a contagious disease he offers no evidence except that nearly all of the phenomena seem to be accounted for without the necessity of supposing a special contagium. For the abnormal accumulation of the non-volatile salts of the blood through evaporation of the fluids in the air-cells, so as to cause inflammation and exudation, time is required; therefore, he does not believe that a sudden and short exposure to cold can ordinarily produce pneumonia, except the short exposure follow or precede somewhat prolonged inhalation of cold dry air; although he thinks that lobar pneumonia may have just that causation, the reason for the chill and for the limitation of the area of the exudation being the disturbance of the nervous equilibrium associated with the more or less complete paralysis of the small blood vessels in that part of the lungs supplied by one particular nerve, some or all the endings of reflexions of which have been suddenly exposed to the enervating influence of warmth following the exposure to cold.

SECTION ON MATERIA MEDICA AND THERAPEUTICS.

SECOND DAY.

Dr. Hugh Hamilton, of Harrisburg, Pennsylvania, read a paper on

THE CHEMICAL PHILOSOPHY OF REMEDY.

Activity in bacteriology and advances in chemistry suggested that there is a chemical philosophy in remedy. Doubtless germs are active in altering, by fermentation, the normal organic constituents of the blood into noxious ones not infrequently fatal (Jaksch, 1887): "To assist in clearing the system of this life activity or aid in rapidly removing these effete bodies constitute the aim of remedy; so that *remedy* might be defined as the use of means to restore the body to

healthy condition by prophylaxis—repair of injury and the correction of nutrition."

The success of antiseptic surgery shows the effects of the application of this principle to diseased conditions. "Germs contain albumen; so if subjected to the physical effects of vacuum, freezing, boiling, or incineration, suffer or perish. Chemically, they succumb to the use of mineral acids, alkalies, certain salts, and organic radicals: "In a word, the deprivation of oxygen, either directly by oxidation of another substance capable of attracting and retaining it, by the loss of hydrogen, by the subtraction or substitution of elemental or approximate radicals. Consequently we can *exclude, arrest development,* or totally *destroy* the bacteria." The ptomaines engendered by bacteria are divided into several classes, and upon subsequent elemental analysis show that they contain certain homologues of organic radicals (Cornill and Babes). The application of disinfectants suggested antiseptics, and leads us to anticipate their modified use in internal medicine.

Clinical experience shows that remedies, although often empirically selected, are those containing efficient oxidizers active appropriators of hydrogen, or by substitution of radicals succeed in destroying the pernicious products of germs, its spores, or the consequences of its mere existence in the vital fluid.

The paper was illustrated by diagrams and charts.

Dr. William Murrell, of London, England, said that the subject was one of very great interest. The philosophy of remedy was very generally passed over by the workers in therapeutics. The only ones who appeared to have done much in this field were Professor Wormley, of Philadelphia, and Dr. Stockman, of Edinburgh, who had been doing very valuable work in this branch.

Dr. Ralph Stockman said that the work referred to had been carried on in connection with a friend, he having assisted in matters of technique and experimentation. He had been struck with the paucity of information contained in textbooks, especially with regard to the causation of fever and emaciation. Most writers attribute these to the breaking up of the tissues under the effect of the disease. Dr. Philip, of Edinburgh, has recently made a very interesting investigation into this condition. He found that by taking the sputum of a phthisical subject, protecting it with great care from contamination by external agents, and maintaining it for a short time at the temperature of the body, that an alkaloid was obtainable by Stas' process, which was evidently an alkaloid, a ptomaine. This substance was also detected in the cavities of phthisical lungs. When this substance was injected into mammals

it produced fever and progressive emaciation, which proceeded to a fatal termination, even where the injections were discontinued. In frogs the same results were obtained, except that recovery sometimes followed. It was also found that if belladonna and atropine were administered after the new alkaloid had been injected, that the pulse regained its strength, emaciation and fever were checked, and the animal recovered. This is a corroboration of the clinical value of atropine in the treatment of phthisis, to which Bartholow called attention some years ago.

Dr. Coghill was impressed with the value of this work. In confirmation of the remarks of the last speaker, he said that the dose of atropine which could be well borne in phthisis was very much larger than in health. This seemed to warrant the opinion that there was some counteracting agent present in the economy in phthisis which was not present in health.

Dr. J. S. Sinclair Coghill, of Ventnor, Isle of Wight, England, read a paper on

CHLORATE OF POTASH.

After a historical résumé of the introduction of this agent into modern therapeutics, he discussed the various theories which have been advanced as to its action, and rejected the idea that it was decomposed and yielded its oxygen to the blood. A number of experiments was detailed upon the human subject, from whom nearly all the salt given was afterward obtained from the urine. "As a salt exceptionally rich in oxygen, it has, without decomposition, the valuable property *per se* by its mere presence, apparently by oxygenating or aerating the blood, and so, by restoring or exalting this vital character of the circulating fluid, influencing to a corresponding degree the nutrition and functional activity by the various tissues and organs of the body. Beyond this it does not appear to have any specific action in any disease." The beneficial effect of this agent upon inflammations of the throat and other mucous membranes has been established by experience. The ordinary lozenges are too strong and are liable to exert a caustic action upon the mouth; he uses only two and a half grains in each trochee, with white sugar. This in combination with arsenic internally is almost a specific in clergyman's sore-throat. It is a valuable tonic and stimulant in cases of cardiac debility and impoverished blood, as in anæmia and chlorosis. It is remarkable what effect this has upon the development of the fœtus, when given during the whole course of pregnancy. Several very interesting cases were cited.

Dr. H. A. Hare, of Philadelphia, Pennsylvania, said that potassium chlorate does not yield

oxygen to the blood, and cited a case of poisoning in which bacteria was found in the kidneys.

Professor J. Solis-Cohen, of Philadelphia, Pennsylvania, said that he was much pleased with the paper, and was in the habit of using chlorate of potash in diphtheria. He believed that all the chlorides were useful in this disease.

Professor Traill Green, the President, advocated the use of sodium chlorate as a less depressing agent, all potassium salts being depressing. He asked if this salt is used in England.

Dr. Murrell, London, England, said that since the publication in the *Lancet* of Dr. Sainsbury's paper, some years ago, the sodium salt was used very largely in preference to the potassium chlorate.

Dr. G. L. Magruder recommended potassium chlorate in catarrhal affections of the bowels in infants in combinations with chalk mixture.

Professor Frank Woodbury, of Philadelphia, Pennsylvania, said that a therapeutic agent need not be decomposed in the body in order to influence nutrition (*i. e.*, sodium chloride). He believed that the potassium chlorate has a limited range of therapeutic usefulness, within which it cannot be substituted by any other salt. In some cases it is very depressing, and its indiscriminate use should be condemned, as collapse may be caused in an ordinary catarrhal pharyngitis, and thus lead to the idea that the case is really diphtheria. It is important to watch the renal secretion, since the salt is not very soluble, and where there is a deficiency of water, crystals of the salt may be deposited in the tubules and give rise to irritation and congestion of the kidneys.

Dr. Charles D. F. Phillips, of London, England, read a paper entitled

THE ACTION OF CERTAIN DRUGS ON THE CIRCULATION AND SECRETION OF THE KIDNEY.

This contained a number of very interesting experiments, made with Roy's onkometer, with caffeine, sparteine, strophanthin, digitaline and ulexin.* He concluded that the flow of urine is not so much dependent on the blood pressure as on the rate of flow of the blood in the renal vessels. With regard to this point, it is necessary to remember that, although such drugs as strophanthin producing a great increase in the force of the cardiac beats, yet these are very much slowed, so that it is quite possible that although the heart's action is stronger, yet the total amount of blood sent through any given organ, such as the kidney, in a given time, may remain the same. Whereas such a drug as digitalis, producing as it does a rise of blood-pressure and a contraction of the kidney vessels, may cause an

*Ulexin is an alkaloid from the gorse, *ulexis europæa*.

increased quantity of blood to pass through the renal vessels. On this view one could find the explanation of digitalin being a diuretic, and strophanthin not being one.

Inasmuch, however, as spartein has not so marked diuretic action, we must also assume that digitalin must have some peripheral action on the secretory apparatus of the kidney.

His results were tabulated briefly as follows, in three divisions:

(A) DRUGS THAT FIRST CONTRACT, AND AFTERWARD DILATE THE KIDNEY.

(1.) Caffein—in small doses—induces in the stage of contraction a fall of blood pressure—in that of expansion, a slight rise; during the former the flow of urine may be arrested; during the latter it is always increased, such increase depending on dilatation of renal vessels.

(The possible arrest of secretion during the first stage is special to caffein, and may be induced by large or repeated doses).

(2.) Ulexin—one-sixth grain, greatly raises blood pressure during the first stage (that of contraction); in the second, expansion is much greater in degree but shorter in duration than under caffein, and is accompanied by brief but marked increase in urinary flow; the effective dose is limited by its toxic action on respiratory centers. Practically, excess of caffein induces only the first stage—excess of ulexin only the second.

(B) SUBSTANCES THAT DILATE THE KIDNEY, BUT TO LESS EXTENT AND MORE SLOWLY THAN CAFFEIN AND ULEXIN

are dextrose, urea, sodium chloride, and acetate, and probably all constituents of the urine.

(C) DRUGS THAT CONTRACT THE KIDNEY WITHOUT SUBSEQUENT EXPANSION.

(1) Digitalin, with *increased* secretion of urine (probably resulting from general heightened blood pressure).

(2) Spartein, with *diminished* secretion (in health at least.)

(3) Strophanthin causes slight temporary contraction, with no marked increase of secretion.

(4) Apocynin, similar temporary contraction, and no definite increase of secretion.

(5) Turpentine; (6) adonidin; and (7) barium chloride give similar results.

In conclusion, it seemed to him that the plethysmographic method of experimentation is a valuable one for determining the exact action of drugs on the circulation, and one that deserves more attention than it has hitherto attracted.

Dr. Murrell referred to the importance of this study of diuretics, since so little is known comparatively of their effects. Diaphoretics are well

understood, but the action of diuretics remains to be worked out. He could not understand the points of superiority of the instrument used over Marey's tympanum.

Dr. Phillips said that Roy's onkometer was simpler, easier to work, and more accurate in its results.

Professor Woodbury inquired if any estimation had been made of the solid ingredients of the urine excreted during the experiments. He regarded water as merely incidental. The urine of snakes is solid. It is of primary importance, in determining the value of a diuretic agent, that its effect upon the excretion of the urinary salts (urea, urates, creatine, creatinine, and allied bodies) shall be ascertained.

Dr. Phillips said that these experiments were yet in their infancy and incomplete, but at a future time the chemical composition of the urine will be communicated.

Dr. Samuel S. Wallian, of New York, read a paper on

THE NEGLECT OF NON-MEDICINAL THERAPEUTICS,

in which he urged the abandonment of drugs, and resort to baths, massage, electricity, and hygiene.

SECTION ON DISEASES OF CHILDREN.

SECOND DAY—MORNING SESSION.

Dr. Moncorvo's paper was read on
HEREDITARY SYPHILIS AND RICKETS IN BRAZIL.

In an extensive practice in Rio de Janeiro, and the province of that name, he believed that hereditary syphilis furnishes sixty per cent. of the cases of infantile disease. It is the most important factor of infant mortality, either directly or by the severity which it imparts to the diseases of children, and rickets makes its appearance in forty-five per cent. of the children that come under his observation. This does not accord with the opinion of Dr. Charles West, who stated in the congress of 1881, that while syphilis was common in Brazil, rickets was unknown.

More than two-thirds of the rickety children in his practice show signs of syphilis and it is rare to find an hereditary syphilitic child whose bones are not deformed by rickets.

Although not prepared to demonstrate the etiology of rickets on these grounds, he believed that hereditary syphilis is an important factor.

A paper by Dr. William Stephenson, of Aberdeen, Scotland, on

THE RATE OF GROWTH IN CHILDREN.

But little had heretofore been known in regard to the rate of growth in children, and nothing

whatever of its clinical bearings. Many important questions arise in this connection. For instance, if a boy in a given year adds to his weight double or treble the number of pounds which he does in another year, is he on account of this increase of cell-activity the more or the less able to bear a strain, such as school pressure or physical labor?

By combining the tables of Dr. Bowditch and those of the Anthropological Committee of the British Medical Association, Dr. Stephenson had tried to construct a standard of the rate of growth from the fifth to the eighteenth year, for all the English-speaking races.

In the charts exhibited, the graphic line representing the annual increase in weight presents a curve of similar type in girls as in boys, but differing in the times of maxima and minima. The most striking difference is seen in the fact that the maximum rate of growth occurs in girls from the eleventh to the thirteenth year, and in boys from the fourteenth to the sixteenth year.

From his study of the tables and charts the author is of the opinion that the critical and trying character of the period known as puberty, is due to the fact that the great activity of growth which occurs then makes a serious demand on the system, rather than to the fact that the reproductive organs are about to reach complete development. Reference was made to important results to be obtained from comparisons in rate of growth between children of the poor and rich, and of the professional, commercial, and artisan classes.

A paper was then read by Professor Victor C. Vaughan, of Ann Arbor, Michigan, on

THE USE OF COWS' MILK IN THE ARTIFICIAL FEEDING OF INFANTS.

Three years ago the writer had isolated the active principle from poisonous cheese. He had named it tyrotoxicon. Later he found the same principle in milk, ice-cream, and other articles of food. In experimenting with this poison it was found that its action on the lower animals produced the phenomena of cholera infantum. The symptoms and the post-mortem appearances were identical. From this it is easy to understand the prevalence of cholera infantum among the very poor, where fresh, wholesome milk is almost unknown.

Not a few medical teachers advise the prohibition of milk during the progress of cholera infantum, basing their opinions on clinical experience. The same view had been reached by the author of the paper through a long series of laboratory experiments, which show that normal milk inoculated with a small portion of poi-

soned milk and kept a few hours at the temperature of the body becomes itself poisonous.

Dr. Lewis P. Bush, of Wilmington, Delaware, advocated the use of the milk of a young and healthy cow, isolated from others, as in a herd there was a possibility of the contraction of some disease which might injure the milk.

Dr. R. B. White, of Ennis, presented the following rules which his experience had suggested:

1. Test with litmus, and add lime water, if required, before every meal.
2. Limit the amount given in twenty-four hours.
3. Allow only bottles large enough for a single meal, four to six in number; those not in use to be washed in boiling water and kept in an alkaline solution or suspended in the sunlight.
4. The best nursing bottle is a two-to-six-ounce flask, with a rubber nipple drawn over its mouth.
5. Bring the milk to the boiling-point, and then keep it on ice.

Dr. A. E. Goodwin, of Rockford, Illinois, was in the habit of insisting on the milk of one healthy cow well fed and stabled, on boiling the milk and keeping it in a sealed glass vessel at a temperature not higher than 60° F., and diluting it with from one-third to one-half of water with, perhaps, the addition of a little malt.

Dr. W. D. Booker, of Baltimore, Maryland, stated that there can be little doubt of the injurious effects of micro-organisms upon milk, and the best way to prevent this is not to trust to keeping the milk cool, but to first boil the milk in a flask supplied with a sterilized cotton stopper or a suitable sterilizer. It can thus be set aside and kept for a considerable time in a pure condition.

He believed it was important, in considering the injurious effects of decomposing milk upon children, not to overlook the danger of other injurious articles of food, which we know to be indigestible by children, and which are probably more often the first cause of the indigestion.

The President, Professor J. Lewis Smith, asked the writer of the paper in regard to the post-mortem appearances in the animals who had died from the effects of tyrotoxicon, and especially in regard to the mucous membrane, which, in patients dying from cholera infantum, is pallid after an illness of twelve or twenty-four hours, and injected if the disease had lasted three or four days.

Professor Vaughan replied that the mucous membrane of the stomach and intestines had been, as a rule, pale, and even almost white. In cases where the animal had survived a longer

time, the membrane had been congested, but never in a very marked degree. The President added that, contrary to the opinion of some good observers, he entertained the conviction that the disease is inflammatory in its nature.

AFTERNOON SESSION.

Dr. William P. Northrup, of New York, read a paper on

THE PATHOLOGICAL ANATOMY OF LARYNGEAL DIPHThERIA AS RELATED TO INTUBATION.

In autopsies of children who died after having worn the O'Dwyer tube from three to seven days, there was found merely an abrasion of the superficial epithelium. This was the invariable rule until the occurrence of an epidemic of measles, in which there were many deaths from complications of pneumonia, scarlet fever, diphtheria, and nephritis. In these children, debilitated by complications, the lower end of the tube thrown against the anterior wall of the trachea, produced instead of the slight abrasions noticed in the other cases, ulcerations which, in five cases out of twenty-six, exposed the cartilage.

Dr. Northrup summarized his paper as follows:

1. The cases here studied are 116 in number, 90 of which were sporadic, 26 epidemic. They all occurred in the New York Foundling Asylum, an institution which has the constant care of eighteen hundred children from the ages of a few weeks to five or seven years.

2. In the sporadic cases the laryngeal tube of Dr. O'Dwyer caused no ulceration worthy of consideration.

3. In the epidemic cases, numbering twenty-six, there were five serious ulcers.

4. The causes of death have been mostly extension of pseudo-membrane to the bronchi, and pneumonia.

5. I have been able to find no evidence that milk or other foreign material has found its way into the lungs. The pneumonia is broncho-pneumonia, and not schluck pneumonia.

A paper by Dr. E. Bouchut, of Paris, France.

ON TUBAGE OF THE LARYNX IN STRICTURE AND IN THE ASPHYXIA OF CROUP

was read. He reported that in the year 1858, he had tried the effect of tubage of the larynx in a number of children. He had three recoveries in ten cases. He relates one case in detail. The child was eighteen months of age. The symptoms were very serious. The face was livid, and the diminution of sensibility indicated approaching dissolution. A silver canula was introduced on the end of a sound, with a silk thread attached for extraction. It was coughed up and

replaced, and on the sixth day was finally removed, and the child made a complete recovery.

Dr. Joseph O'Dwyer, of New York, N. Y., read a paper on

INTUBATION OF THE LARYNX.

He began experiments in 1880, at the New York Foundling Asylum. At that time tracheotomy was in disfavor at the asylum, because for some time its usefulness had not been demonstrated by a single recovery. The difficulty and danger of tracheotomy deter many physicians from the operation, and not a few even of the laity fail to understand how a child's suffering can be relieved by cutting its throat.

He first used a prostatic catheter introduced by the nostril. It was found impracticable, partly because the patient would remove it with the hands. The long tube suggested a short one, and its practicability was almost at once demonstrated by the construction of a tube one end of which extended into the trachea, while the other occupied the vestibule of the larynx, permitting the epiglottis to close over it in the act of swallowing. But what was to hold it down in place against the expulsive effort of a cough? First a bivalve form was given to its lower extremity, permitting of its expansion after introduction. But the tube was thus made a trap for fragments of pseudo-membrane. Longer tubes reaching nearly to the bifurcation of the trachea were kept in place better, but after a cough the long tube would be found thrown partially out of place, and had to be pushed back with the finger. A second shoulder was then added to the tube, below the expansion or head at its upper extremity. This shoulder kept the tube from being repelled, but the abruptness of its upper border made extraction very difficult.

The abrupt shoulder then gave way to a gradually tapering enlargement, which was found to accomplish all that could be desired. A tube constructed in this way, when projected upward by coughing, will slip back into position by the pressure of the vocal bands on the sloping sides, aided by its weight. This retaining swell is only made thick enough to hold the tubes loosely in the larynx, in order to permit of their easy expulsion in case of sudden occlusion by masses of pseudo-membrane too large to pass through. Owing partly to this and partly to the difference in the size of the larynx in different children of the same age, they will sometimes be expelled even when unoccupied by false membrane, and before the laryngeal stenosis is fully relieved. If it were not for this, such a tube could be indefinitely worn. A larger and shorter tube would not be expelled, but it would make serious pressure on the lining membrane of the larynx. Such a tube may be

temporarily applied with advantage as a laryngeal dilator, not in ordinary severe croup, but in slow cases where little help is required.

Intubation is apparently, but not really, a simple operation. With more than the usual dexterity and coolness, and an easy case, it will be called by the physician who tries for the first time, a very simple thing. With less dexterity and a difficult case to manage, it will be called a difficult operation.

When established, and perfected, and in common use, intubation can never be considered a satisfactory remedy, in view of the complications and the very nature of membranous croup. The first results, if good, will create enthusiasm; if bad, distrust.

In comparing tracheotomy and intubation, the question is not which will save most life in a given number of cases submitted to treatment, but which operation can be performed or will be permitted in the greater number of cases.

A paper was then read on

INTUBATION OF THE LARYNX, ITS ADVANTAGES AND DISADVANTAGES, WITH STATISTICS OF THE OPERATION,

by Professor F. E. Waxham, of Chicago, Illinois, while strongly advocating intubation, the writer would not overlook its disadvantages. The operation is a difficult one in its performance. The soft tissues may be wounded, or the trachea perforated. It is more difficult to extract than to insert the tube. A serious trouble may ensue from the difficulty of swallowing when the tube is in place. These are the dangers. None are so grave that they cannot be overcome.

On the other hand, it has many advantages over tracheotomy. It can be done almost instantly. There is no loss of blood, no pain, no shock, no open wound with the possibility of septicæmia or erysipelas. There is no drying of mucus in the tube, and no necessity for cleansing the tube. Less attention is required in the after-treatment. Finally, we can save as large a number of adults as, and a much larger number of children than, by tracheotomy.

After presenting a series of statistics, the writer closed with the statement that intubation has been performed one thousand times within two years, and that two hundred and sixty-nine lives have been saved from certain death.

Dr. Charles G. Jennings, of Detroit, Michigan, expressed high appreciation of the labors of Dr. O'Dwyer and Professor Waxham, and believed this method to be of great value. His own experience, however, had led him to prefer tracheotomy. His thirty-six tracheotomies had been followed by seventeen recoveries, while he had

applied the tube in twelve cases without a recovery. Professor Waxham's statistics contain about one thousand cases, with twenty-six per centum of recoveries. He believed that certain operators in both operations have records far above the average, and that the successful tracheotomists have a larger proportion of recoveries than the physicians performing intubation who rank as the most successful. He believed that the personal equation is an important element in considering the comparative value of the two procedures.

Although intubation possesses the advantages alleged in the papers read before the section, it remains true that tracheotomy has advantages which should not be forgotten. After an incision the trachea is accessible for the removal of membrane and dried mucus, and direct medication by instillations and powders. Adequate nourishment after intubation is almost impossible, while there is no such difficulty after tracheotomy.

An obvious advantage of intubation is that it can be performed by many physicians who would not undertake a tracheotomy and in this way relief, impossible otherwise, will be afforded in a great many cases. His own experience, however, leads him to urge tracheotomy in all cases offering reasonable chance of success, and to reserve intubation for the cases in which operative interference will give nothing more than euthanasia, and for those patients whose parents refuse consent to tracheotomy.

Dr. T. J. Pitner, of Jacksonville, Illinois, questioned the correctness of Professor Waxham's closing statement that the 249 cases of recovery following intubation were so many lives saved by the operation. This assumes that, that all cases of stenosis from croup or diphtheria are, without operative procedures, necessarily fatal. He did not, however, question the utility and great importance of this operation, which appears to him to be preferable to tracheotomy.

Dr. Northrup stated, in answer to questions, that in thirty-three cases he had never met the slightest difficulty in inserting the tube, and had not failed in a single case to fully and promptly relieve the dyspnoea. He had met with no accident, and probably gentlemen present had in the aggregate used the tube several hundred times had never met with untoward accidents. He thought the only real drawback to the success of intubation lay in its interference with feeding. It is sometimes difficult to keep up full nutrition when swallowing is so impeded.

In one of his cases the physician in charge had retired hopeless, without doing tracheotomy, and being ignorant of intubation. The child was exhausted and comatose. The tube was inserted.

The child returned to consciousness. At the end of forty hours he coughed out the tube. It was not reapplied, and the child made a perfect recovery.

Dr. O'Dwyer, in answer to questions, said that, in his opinion, statistics will be of very little value in settling the question between tracheotomy and intubation until a very large number have been obtained. Aside from the question of saving life, intubation will be resorted to in the most hopeless cases, those in which tracheotomy would not be thought of, for the sake of securing euthanasia.

SECTION ON MILITARY AND NAVAL SURGERY AND MEDICINE.

SECOND DAY—MORNING SESSION.

The first paper was read by Dr. Robert Reynburn, of Washington, D. C., entitled

ARE WOUNDS FROM EXPLOSIVE BALLS OF SUCH A CHARACTER AS TO JUSTIFY INTERNATIONAL LAWS AGAINST THEIR USE ?

The proper discussion of the subject, the speaker said, was largely influenced by the changed conditions of modern, as compared with ancient, warfare. The chief endeavor in the battles of ancient times was to kill as many of the enemy as possible in a given time. The same end is attained in modern warfare; but it has been found that an enemy wounded sufficiently to be *hors de combat* is practically a much greater source of weakness to his comrade than if he were slain in battle. Every wounded man requires the services of at least two able-bodied men for his care and sustenance until he again becomes fit for military duty. The speaker graphically described the characteristic wounds produced by explosive projectiles, which are generally followed by extensive sloughing, which reduces the chances of recovery. Such projectiles were in use during the War of the Rebellion, but were soon abandoned; some thirty-three thousand of Gardner's explosive bullets were distributed during the early part of the war, but were soon withdrawn. During the year 1868, by an agreement made between the principal nations of Europe, at an international military conference held at St. Petersburg in October of that year, all the great powers resolved to abstain from the use of explosive projectiles in war under the weight of four hundred grammes. The author concluded by saying that common humanity demanded that the use of such projectiles be prohibited by international law.

A paper on the same subject, by Dr. Charles W. Voorhees, of New Brunswick, New Jersey, was read by the author, whose opinions were, in the main, those of the preceding speaker. He

thought that the wounds produced by explosive projectiles, aside from the great destruction of tissues attending them, were doubtless aggravated by the chemicals to which the explosive properties were due. He did not wish to be understood as advocating child's play in war, but so long as war was a necessary evil, it should be as humane in its methods as possible.

The discussion of the papers was opened by Dr. Marston, of the British War Office, who said that he was not aware that explosive bullets were in use by any civilized nation at the present day; they were in use in India and Africa for the killing of large game, but he had not known of their use since the Crimean war.

The President, Professor H. H. Smith, stated that it was not generally known that the late President Lincoln, early in the year 1863, had issued a notice, or perhaps only a suggestion, that the use of explosive projectiles be discontinued. He was glad to see this question brought before the consideration of the congress, and as the United States had not been represented at the International Military Congress, at St. Petersburg, he advised that the powers be notified through their representatives of the entire acquiescence of the present congress with the views and agreements then enunciated.

Dr. Jeffrey A. Marston, of England, then read a paper on

AGE AND ACCLIMATIZATION OF SOLDIERS IN REFERENCE TO SERVICE.

With regard to age, the author said that a man was best fitted for service, at least in India, between the age of twenty-seven and thirty years. He alluded to the well-known fact that the younger men, although capable of enduring great hardships and privations for a short period, are inferior to adults in their powers of endurance in long-continued efforts.

The influence of climate upon the soldier was discussed at length, the speaker more particularly describing the effects of Indian climate upon the newly arrived soldier. He presented tables showing the mortality among soldiers in Indian service, stating that the prevailing disease among the soldiers is enteric or typhoid fever. This disease may be said to have no geography, extending, as it does, from the Rocky Mountains to the Himalayas. It prevails among Europeans, and is also more frequently fatal during the hot and cold seasons; according to the experience of Indian surgeons, the greatest period of susceptibility lies between the age of eighteen and thirty years. The liability of death during his first year of Indian service by this disease is greater than by all other diseases.

The British troops suffered greatly in Egypt during the campaign of 1882; in the Soudan campaign of 1884, the troops suffered less from this cause, being daily supplied with condensed water; but in 1885, in spite of this same precaution and of great attention to sanitary details, for some reason still unaccounted for, the sickness from this disease was excessive.

During the first year of the young soldier's sojourn in India, he is likely to be attacked by a fatal form of pneumonia. But of the prevailing affections next to enteric fever, hepatitis heads the list, this disease being very commonly met with. Cardiac disorders come next in the order of prevalence.

In the discussion which followed, Dr. Morse K. Taylor, United States Army, stated that his experience agreed with that of Dr. Marston in regard to the prevalence of heart affections among soldiers; this fact, he thought, was not sufficiently recognized by our own surgeons.

Surgeon-General G. T. Langridge, of the British Army, fully endorsed the view of Dr. Marston with regard to the greater power of endurance of the adult men over the younger; these latter, he said, were constantly breaking down when marching, particularly when exposed to the heat. During the Afghan campaign the troops suffered more from enteric fever than from any other disease.

In the absence of the authors, the next three papers were read by title. The first of these was entitled:

"Is it desirable that each soldier in time of war, should personally carry a first field-dressing for a wound? If so, it is advisable that a preliminary wound-dressing should form part of the equipment of every soldier on taking the field? Of what shall it consist, and in what part of the soldier's equipment should it be carried?" by Sir Thomas Longmore, of Netley, England, Professor of Military Surgery at the Army Medical School. The paper was accompanied by a dressing devised by the author for this purpose.

The second paper by Professor Von Eschmarch, of Kiel, Germany, entitled "On the First Provisional Dressing on the Battle-Field," and was also accompanied by a simple antiseptic dressing devised for this use.

The third, entitled, "On the Antiseptic Treatment of Wounds in War," was by Dr. M. W. C. Gori, of Amsterdam, Holland.

Dr. John Anderson, of London, England, read a paper

ON HEAT-STROKE IN INDIA.

After adverting to the labors of Professor H. C. Wood, of Philadelphia, Pennsylvania, upon this

subject, he proceeded to a definition of the term heat-stroke, and divided his subject, according to the degree of severity of the disease, into ardent fever, heat, apoplexy, and sunstroke. The first is characterized by a high fever of short duration, and by great exhaustion; the second, by all the signs of apoplexy, and causing death by asphyxia; the third, by great cardiac debility and nervous manifestations.

These are all pathologically allied, of course. The speaker briefly alluded to the influence of alcohol in the causation of the disease, which is generally supposed to be due to the direct action of heat upon the meninges of the brain, but the condition of the glandular organs, of that regulator of the heat, the skin, were factors which should not be overlooked.

With regard to the prophylaxis of the disease, protective measures, of course, were all-important, moderate eating, the wearing of thin clothing, and the importance of free ventilation of houses and camps. The author inveighed against the use of alcohol, and stated that the best drink which could be devised for soldiers, while on the march, was cold tea flavored with lime-juice. Regarding the medicinal treatment of cases of heat-stroke, the first indication is to relieve the excessive heat, and for this purpose he had had great experience with the use of a neutral salt of quinine, the hydrobromate, administered hypodermatically in doses of two, three or four grains, repeated according to indications. The speaker emphasized the necessity of using a thoroughly clear solution, filtered if necessary; when this precaution was taken, any untoward symptoms from the use of the needle, other than slight local irritation in some rare instances, were exceedingly uncommon in his experience. As for the occurrence of tetanus as a result of these punctures, he himself had never seen a case of it. The speaker was at a loss to explain the manner in which the quinine reduced the temperature so rapidly in such cases, but thought it probably due to its action upon the cardiac ganglia. After the administration of quinine, the portal congestion usually existing should be relieved by mercurials, and the nervous condition combated by means of the bromides of potassium and ammonium.

AFTERNOON SESSION.

Dr. Marston, of England, opened the discussion of the paper by indorsing the view of his compatriot with regard to the efficacy of quinine in the disease, and reiterated the author's cautions in using a perfectly clear solution.

There had been a number of cases of tetanus published in the report of the army in India as

due to the use of the needle; such a complication could be avoided by the use of a pure solution and clean instruments. In conclusion, he alluded to the fact that persons who had had sunstroke were thereafter liable to pyrexia, without apparent cause. Strong men became nervous and timid, and suffer from insomnia and dreams; they are occasionally subject to neuralgias and excruciating headache after exposure to the sun; he had even noticed, in some cases, paroxysmal attacks of mania. To such sufferers he always advised removal to cooler climates.

Professor Henry Ernest Goodman, of Philadelphia, Pennsylvania, had noticed, during the late war, many cases of so-called heat-stroke, in which he almost invariably found some cardiac trouble, sometimes accompanied by a *bruit* at the apex or base; he thought that in these cases the cardiac affection accounted for the heat-stroke, so-called. In his experience during the war, cases of true heat-stroke were exceedingly uncommon.

Dr. Moses K. Taylor, U. S. Army, fully concurred with the preceding speaker in his views, which were in accord with his own observations during the late war.

Dr. Sherwood, of the U. S. Pension Office, spoke of the results of sunstroke as shown by the records of the Pension Office. Many claims have been, and are still received, alleging nervous diseases, such as epilepsy, paralysis agitans, and even locomotor ataxia as the result of sunstroke. He was unable to trace the connection between these diseases. The literature of this subject is exceedingly meagre, and in order to determine the exact relation between sunstroke and nervous affections, if any there be, he enjoined physicians, both civil and military, to keep a record of such cases, and to follow them in their complications as far as possible.

Dr. James Collins, of Philadelphia, Pennsylvania, expressed the opinion that occipital headache was frequently attributable to sunstroke. For the treatment of the disease he had used quinine, hypodermically, in a solution of the bi-muriate rendered neutral by the addition of a small quantity of urea.

Dr. George T. Langridge, of England, had found the solution of quinine recommended by Dr. Anderson very useful in similar cases—in the Afghan and Boer campaigns, as well as in India. In the latter country, when the disease resisted all ordinary forms of treatment, quinine was almost a specific.

Dr. Eli A. Wood, of Pittsburg, Pennsylvania, had found that after removing the clothing the application of ice externally, and even in the rectum, had proved of greater service at his hand than any medicinal treatment.

Dr. Max J. Stein, of Philadelphia, Pennsylvania, believed that manipulation and rubbing the body with ice produced good results. He believed that a temperature of 111° F., mentioned by Dr. Anderson as necessarily fatal, did not, according to Dr. Austin Flint, always so result.

Dr. W. H. Lloyd, of England, agreed with Dr. Anderson regarding the influence of alcohol in the causation of this disease. His experience in the navy had been that most of the causes of heat stroke—those occurring on shipboard in the Red Sea at least—were among the cooks, stokers, bakers, etc., who were men of intemperate habits.

Dr. Anderson, of England, author of the paper, thought that no surgeon would neglect the usual means of treatment, but that he had desired to lay special stress upon the hypodermatic use of quinine as the readiest and best means at our command of reducing the high temperature.

SECTION ON LARYNGOLOGY.

SECOND DAY—MORNING SESSION.

J. P. Klingensmith, M. D., of Blairsville, Pennsylvania, read a paper on

HAY-ASTHMA.

In few diseases does he find so diverse opinions or so many methods of treatment as in hay-fever. Dr. W. H. Daly's paper in 1881, first demonstrated the underlying naso-pharyngeal causes. The exciting cause does not work where nasal mucous membrane is healthy. One must remove the pathological cause before a cure can be effected. Dr. Hock, of Freiburg, Germany, had placed much importance upon the pathological condition of the nasal mucous membrane as the fundamental cause. From personal experience, Dr. Klingensmith would place local irritation, hypertrophies, deflected septum, etc., as the starting point, and dust, pollen, light, heat, etc., as the exciting cause. There must be an abnormal condition before local irritants have power. Always make careful examination of anterior and posterior nares. Radical treatment is called for, especially where there is more or less occlusion.

The cautery and Allen's or Jarvis' snare will bring about the best results under these circumstances. Sensitive areas he treats by the continued use of acetic acid or cautery. He uses it at a cherry-red heat; for if too hot one will have hæmorrhage follow, and if too cool it will produce greater pain. Once in a week gives time to allay irritation by use of Dobell's solution, etc., before another sitting. He begins treatment at least two weeks before an expected attack, and even treats or operates when the disease is at its

height. Out of thirteen cases, he cured nine and greatly benefited four.

Dr. Lennox Browne, of London, England, said that he had heard no new ideas on the subject since the president's paper of six years ago. He does not think that sexual irritation can cause or in any way interfere with hay-asthma, but may do so in nasal troubles. He believes in local treatment and electricity. Dull, red heat he likes best.

Professor E. F. Ingals, of Chicago, Illinois, says that it makes no difference whether the electrode is at a white or red heat as far as hæmorrhage is concerned, provided that one does not break the circuit before the wire is removed from the tissues.

Professor W. E. Casselberry, of Chicago, Illinois, agrees that it makes no difference whether red or white heat is used. The cause of disease is located in diseased mucous membrane or sensitive areas, and the case must be treated several months, till all are removed or destroyed.

Dr. J. MacKenzie, of Baltimore, Maryland, stated a case of a woman who had been under his care, who always had attack of hay-fever whenever exposed to the pollen of rose, and even the sight of it would cause a violent attack. He caused a perfect artificial rose to be made, and one morning when the patient came to the office, entirely free from hay-fever, he placed the rose near by, and in less than a minute her nostrils were occluded, eyes reddened and suffused, and she was in the midst of a bad attack. Air was pure, and there was no dust on the flower.

After having been informed of the trick, fresh pollen put on the flower had no effect, and since then she can use roses without trouble. Sensitive areas are most common on the septum; sympathetic and vaso-motor nerves are those involved. Rose and hay-fever and cough, autumnal fever, and asthma are all the same nasal neurosis.

Professor J. Solis-Cohen, of Philadelphia, Pennsylvania: There are too many specialists and not enough practitioners. Lack of equal nerve-tension and action of vaso-motor system upon blood-supply to vessels irritates and predisposes to hay-fever.

Treat the constitution, and especially the nervous system, through interval till next attack.

Dr. Ridge, of Camden, New Jersey, said he was a victim, and in his case it was hereditary for several generations. Any dust or pollen will cause an attack, and cocaine gives best results in relieving, especially when used in saturated solution of boracic acid (gr. xv. to ʒj).

Quite a large portion of the section acknowledged themselves victims of hay-fever. Inhaling a mixture of the following: acid carbol., chloro-

form, camphor, gave one the greatest relief in one case. Imagination plays an important part as well.

Professor Stockton, of Chicago, Illinois, gave as causes, (1) highly nervous temperament; (2) diseased air-passages; (3) peculiar external irritants (varies with person). Cold to his own head and neck would cause sneezing for half an hour and other symptoms resembling hay-fever. It could be cured for a time, but paroxysms would return.

Dr. Thomas closed the discussion: It is not simply hyperæsthesia, though the nervous factor greatly increases the severity of the attack, and treatment must be constitutional, and especially directed to the nervous system.

AFTERNOON SESSION.

Dr. N. Rankin, of Alleghany, Pennsylvania, read a paper entitled

SOME REMARKS ON THE HISTORY OF RHINOLOGY.

Since the nasal cavities play so important a part in respiration, it is surprising that rhinology should have been so neglected in the past. As organs of smell they are to protect the lungs from deleterious gases and assist organs of taste, stimulating appetite and even digestion. The reader compared the perfect instruments of to-day with those of thirty years ago, when a tongue-depressor and clumsy polypus forceps worthy of the village smith had to suffice for many. The art is old, even the Egyptians had some idea of treatment. Professor Czermak, of Pesth, conceived the rhinoscope, after which much was learned of what was before neglected and obscure. Now local applications can be made to the posterior nares with more ease than formerly to the pharynx. The writer paid tribute to the memory of the late Dr. Louis Elsberg as the father of rhinology and laryngology in America.

A special discussion was opened by Professor E. F. Ingals, of Chicago, Illinois, on the subject of

EPISTAXIS.

He opened the discussion, he said, for the purpose of bringing out new ideas on the subject, if possible, from others.

Ordinary cases are of no moment, and alarming only in young children and where the system is run down. Severe cases may demand constitutional treatment of ergot, gallic acid, etc., in additions to local applications. Most of cases readily checked by cocaine or tannin. Persulphate of iron is irritating; it causes hard, coagulated masses, beneath which the bleeding contin-

ues and which interfere with the use of more effective remedies. An effort should always be made to locate the bleeding-point, and which should be cauterized with galvano-cautery, nitrate of silver, iodine, or pure carbolic acid.

In the discussion that followed various methods were suggested for mechanically controlling the hæmorrhage.

SECTION ON PSYCHOLOGICAL MEDICINE.

SECOND DAY—MORNING SESSION.

Dr. E. C. Spitzka, of New York, N.Y., read a paper on

MILIARY ANEURISM.

He reported a case which came under his observation in 1886, that of a girl twenty-four years of age, who suffered from insomnia and anorexia and great motor weakness, being scarcely able to cross her room unaided. She had suffered from what appeared to be hallucinations at night for seven years, and during that period it was noticed that from time to time she dropped articles which she was carrying. She would often totter and sway from side to side. From March, 1886, she became poorly nourished. Her menses ceased in July, and remained absent until her death. Her brother had also died of a cerebro-spinal disorder, and her father had died at an advanced age with many of the same symptoms. On post-mortem examination there was found no evidence of softening processes having occurred at any time, although there was found slight grayish discoloration in parts of the substance of the cord.

Dr. Spitzka next reported a case of

DEFORMITY OF THE BRAIN,

with specimen of the cerebellum, in a child aged five. He gave some very interesting details of the anatomical peculiarities, and stated that there was scarcely an organ in the abdominal or thoracic cavities which was normal.

Dr. Savage, of London, England, discussed Dr. Spitzka's first case and cited a somewhat similar one, though without the direct inheritance spoken of in Dr. Spitzka's case. It was that of a lad who developed all the symptoms of disseminated sclerosis—in fact was for many years the stock case in the hospital just as soon as the lecturing season commenced. This case was sent to an asylum; was excited and maniacal. After six or eight months he lost control over his sphincters, and presented other symptoms that were typical of the disease referred to; and this was diagnosed after his movements and peculiarities had been carefully noted. He finally died, and upon post-mortem examination no insular sclerosis was

anywhere visible, neither were there allied changes; there was absolutely nothing present that would indicate insular sclerosis. He said it was now admitted that in cases of nervous disease it is rather the order of the disease than the quality that is worthy of consideration; that a widely spread disease affecting the motor or the general tract, especially the motor tracts, will give inco-ordination, and would give rise to symptoms which in former years would have been attributed to the cerebellum.

Dr. Daniel Clark, of Toronto, Canada, read a paper on

REMISSIONS AND INTERMISSIONS IN INSANITY.

He said there can be no vital and psychic energy without its presence and co-operation. It is an indispensable condition. When the rigor mortis of death sets in it takes its flight, hence the evidence of its intimacy with, and necessity to, vitality. It has, in normal physiological operations, seasons of remissions and intermissions, and it determines their intensity and duration in organic life. In chronic pathological conditions the same law exists, but it necessarily, by virtue of low vitality attended with excessive energy, makes the intervals more extended and the symptoms more pronounced in the ever-recurring periodicity and alternations. Dr. Clark treated of a trinity of forces—chemical, psychic, and vital forces—and believed the lower forms embraced the greater.

Dr. Blandford, of London, England, asked Dr. Clark to explain his theory and principle more fully. He differed with Dr. Clark on many points of his paper. He had seen many patients have intermissions of exactly the same form of mental disorder, and who were not subject, as Dr. Clark had claimed, to different forms of mental disease at each remission; and instanced one case familiar to him, of a patient who had been sent to one of the English asylums on thirty-five different occasions, suffering with precisely the same form of mental disorder, mania, upon each commitment.

Dr. Clark stated that his experience had been different from that of Dr. Blandford. He had never seen a patient suffering from *folie circulaire* who enjoyed during intermissions normal mental health. Patients had said as much to him; they had been able to transact business during intermissions, but had lost their former grip on affairs.

Dr. Savage differed quite widely from the sentiments expressed by Dr. Clark, particularly as related to animal magnetism, which, he said, was not at present well defined. The question of the correlation of forces was an important one, and should receive much attention. Dr. Savage cited

several cases in which the remissions in *folie circulaire* were complete. He also cited the case of a patient whose disease was diagnosed as general paresis, and who appeared to be steadily going down hill, but who, after the development of a large carbuncle upon his shoulders, quite recovered, and lived outside transacting business for seven or eight years, when he died of some nervous disease.

Dr. Ferguson next discussed Dr. Clark's paper. He did not believe it possible to explain the rhythmical phenomena of intermissions and remissions of mental disease by Dr. Clark's theory.

Dr. C. H. Hughes, of St. Louis, Missouri, thought the obstacles which enter into the consideration of Dr. Clark's paper consisted in the barrier which physiology has placed in the way of allying physical organism to chemical organism, and which consists in the basil-motor mechanism and the part which it plays in neuro-pathology and neuro-physiology.

Dr. Clark was glad that his paper had succeeded in evoking discussions upon the subject of the phenomena of remissions and intermissions. He had not assumed that the key presented by him would open the lock. On the other hand, he did not see that the gentlemen who followed him offered any solution of the mystery at all. He believed that when a man suffered from an attack of insanity a post-mortem examination would, in every case, reveal changes in the brain, no matter whether it was claimed the man had recovered or not. Recovery is only a relative term.

The next paper of the session was by Dr. Horace Wardner, of Anna, Illinois, "Occupation for the Insane." He cited some cases from his asylum, upon whom the effect of judicious occupation was marked.

Dr. Bower, of Bedford, England, followed with a paper upon

OCCUPATION FOR THE INSANE IN ASYLUMS FOR THE PRIVATE CLASS IN ENGLAND.

There had been a change in these asylums since the time Dr. Bucknill had written that they were "castles of indolence," and in his own asylum Dr. Bower had succeeded so well in his plan of insisting upon his patients occupying themselves that he had lost only two patients who thought honest work derogatory.

The patients have attended to the cows, rabbits, and pigs, and in wet weather have done sawing, some painting, carpentry, and chaff-cutting, pumping and other work not of a menial character. The most suitable work has been copying legal writing. The women sew, knit, do fancy-work, china painting, etc.; some held

the house-keeper to prepare fruit-preserves and pudding. Seventy-five to eighty-five per cent. of Dr. Gower's patients were occupied from two to three hours daily.

Dr. Andrews, the President, said there had been an enormous increase in the amount of occupation by patients in American asylums within ten years. The importance of the subject was now everywhere admitted. Seventy-five per cent. of the patients in the Buffalo asylum are employed, and he believed a like percentage in other asylums. We use moral measures only in inducing our patients to work. We tell them it is for their good, that they are the happier for it, and we rarely have any trouble in the matter.

AFTERNOON SESSION.

The first paper was read by Dr. T. W. Fisher, of Boston, Massachusetts, on

MONOMANIA AND ITS MODERN EQUIVALENTS.

He gave the nomenclature adopted by various writers and alienists in this country and abroad, and in the course of his paper cited some interesting cases of paranoia which had come under his observation. In Dr. Fisher's opinion there is:

First. A common form of primary insanity, with systematical delusions.

Second. There are many cases secondary to inebriety.

Third. Cases are reported secondary to mania and melancholia.

Fourth. They occur when no heredity can be proven.

Fifth. Hallucinations of hearing occur in three-fourths of all cases.

Sixth. Episodical excitement is very common.

Seventh. Monomania is the best English term for them.

Eighth. Such cases should be separately classified and reported.

Dr. Walter Channing, of Boston, Massachusetts, next read a paper by Dr. Bannister, of Kankakee, Illinois,

ON THE CLASSIFICATION OF INSANITY.

In Dr. Bannister's opinion all the classifications of insanity are necessarily more or less defective. A perfectly scientific or satisfactory one is an impossibility in the present state of our knowledge. The best one, in his judgment, was the clinical or, perhaps more correctly, the symptomatological one. Dr. Bannister then outlined in detail such a classification as in his judgment would best serve the purpose.

Dr. Channing then read his own paper on

THE INTERNATIONAL CLASSIFICATION OF MENTAL DISEASES,

which he illustrated with a chart. He said the plan he had brought forward was that sanctioned by the Association of Asylum Superintendents at Saratoga, in May, 1886, and that in the opinion of foreign as well as American alienists, there should be a classification upon which all could unite. He not claim perfection for the classification here outlined, but thought it one which would answer the purpose very satisfactorily.

Dr. Yellowlees, England, thought that the classification would not be sufficiently clear. He deplored the fact that, owing to the incomplete knowledge of the subject of mental disease, alienists were still compelled to classify forms of insanity by their outward manifestations. Mania, melancholia, and dementia are simply labels for symptoms. Chronic mania often mixes itself up with dementia. We know what we mean when speaking of mania, melancholia, and dementia, but beyond this the classification is valueless. Primary delusional insanity is not sufficiently truthful, as it often comes after melancholia. One cannot tell oftentimes between primary dementia and the acute stupor of melancholia.

Dr. Duquet did not understand why puerperal mania should be a distinct form in the classification any more than gouty or rheumatic insanity.

Dr. C. H. Hughes, of St. Louis, Missouri, said that alienists should go forward in their efforts to secure a clear and descriptive classification. Mania, melancholia, and dementia sufficed for courts of law, for jurymen, but science should not be kept down to such a classification from such considerations. The work of inaugurating reforms in classification was a thankless one. Every alienist has peculiar ideas of his own upon this subject, and does not readily incline to those of others.

Dr. Hughes then read an elaborate paper, entitled

THE TRUE NATURE AND DEFINITION OF INSANITY.

which was discussed by Dr. Yellowlees and Dr. Channing.

SECTION ON SURGERY.

SECOND DAY—MORNING SESSION.

Dr. John Homans, of Boston, Massachusetts, read a paper entitled

THREE HUNDRED AND EIGHTY-FOUR LAPAROTOMIES FOR VARIOUS DISEASES,

a *résumé* of the writer's experience. In these cases he was in the habit of using drainage-tubes,

the latter being cleansed once in about four hours, but he did not consider they drained the abdominal cavity, although Keith, of Edinburgh, has in his possession about two gallons of fluid secured in this manner from one patient. In his own practice, he had had one case of tetanus after laparotomy, the patient dying at the end of six days; one case of stone in the bladder; from hair falling in forming a nucleus. The greatest number of consecutive recoveries he had had was thirty-eight. He considered that suppurative cysts of the ovary very rare, only one having come under his notice, and he believed that they did not exist unless exposed to the air or a mucous surface. The removal of sessile tumors was quite a knack, and only acquired after long experience. The preference of procedure of the writer was the extra-peritoneal, using the wire ecraseur, and if the bladder were injured during the operation a soft catheter was retained in the urethra. In five cases of bleeding fibroids, one he had cured, the second relieved in part, and the third received no benefit. Another case in which the uterus was removed, the patient died. In one case of abscess of the ovary, the patient recovered; the writer called attention to that condition in which fæces exude from the umbilicus through a tube called the "omphalo-mesenteric remains," one case coming under his care. The patient afterward died from marasmus.

One case of tubercular peritonitis he had cured. He had had five cases of artificial anus, with three cures; one case of cystic tumor in which, during the operation and opening of the sac, the woman gave a violent cough, and the cyst was forced clean out by the effort. In one case of laparotomy, performed January 27, 1886, the patient was confined in December of the same year. A case of fibroid tumor of the uterus was gradually expelled through the wound in the abdominal wall. The speaker saw no reason why contractions should not occur in this manner as with any other foreign body in the uterus; the removal of uterine appendages in his own practice for nervous diseases had not given good results, only one case being cured; a woman who was very violent during her menstrual period, and who had commenced sexual intercourse at seven years of age, (?) was relieved of her mania, but her mind was weak. He had had two cases of myxo-lipoma, one in a man and the other in a woman; the man died eight hours after the operation. The speaker had performed laparotomy upon him once before, but refused to remove the tumor; the second time the man begged to be relieved of it, and the attempt wa

made, fifty-two pounds being removed, and other portions were left. He had performed laparotomy once for perityphlitic abscess, and the patient recovered.

Dr. Addinell Hewson, of Philadelphia, Pennsylvania, presented a paper, which was read by the secretary, making the claim that the main point in laparotomy was the closing of the abdominal wound without sutures. This was done by means of binders' paste and a certain prepared gauze, called

DONNA MARIA'S GAUZE,

which was first made some forty years ago; this gauze, however, costs \$5 per yard. The writer was not partial to wet dressings, and the present paper advocated dry dressings.

Dr. I. M. Matthews, of Louisville, Kentucky, read a paper entitled

WHEN IS COLOTOMY JUSTIFIABLE?

The writer had had twenty years' experience in rectal surgery, and he did not consider colotomy justifiable in cancerous disease of the rectum when located three inches from the anus; again, not in stricture beyond the reach of the finger, nor in aneurism, nor in cases of specific origin. In most of these operations life was not prolonged; he had seen as many live as long without it as with it. The speaker considered the pain in cancer to be inherent. In the division of stricture, he did not consider there was any danger, as the hæmorrhage could be controlled. In small ulcers of the gut, he did not believe in operating, antiseptic and internal treatment being preferable. In congenital occlusion of the rectum he did not think it should be recommended, but that the perineal operation should be done. When the sigmoid flexure is blocked, the speaker thought it justifiable. The question then arises, What is to be done in the majority of cases for stricture? Linear rectotomy, not colotomy.

The paper was discussed by Professor Dawson, of Cincinnati, Ohio, who agreed generally with Dr. Matthews. He had really never performed colotomy which gave him satisfaction. In syphilitic cases of stricture he had found they could be treated constitutionally.

Dr. Samuel Benton, of London, England, remarked that if he could get beyond the cancer he performed the operation, but if the growth was high up he performed colotomy. It had not been his experience that colotomy should not be performed in cancer of the rectum; his last case lived sixteen months after the operation; he considered pain was relieved by colotomy. Cases of benign stricture he treated by electrolysis.

SECTION ON GYNÆCOLOGY.

SECOND DAY—MORNING SESSION.

Thomas More-Madden, F.R.C.S., Ed., Dublin, Ireland, read on

THE CAUSES AND TREATMENT OF BARRENNESS.

Few gynecological questions come so constantly before us, and none probably are of greater practical importance, than those connected with sterility, involving, as they do, not merely the physical health of the patient, but also in many instances affecting the happiness and welfare of married life. For, at least in the country where he practices, child bearing is still generally, and I believe rightly, held to be one of the chief functions of a woman's conjugal life; while to be sterile is commonly regarded as the protean source of marital troubles.

In his paper is given, in tabular form, a statement of the causes of sterility in five hundred and twenty-eight of the cases of infecundity which, occurring in married women within the child-bearing period, which had come under his observation in the gynecological department of a hospital. The cases may be roughly divided into two classes.

(1) Those in which barrenness was occasioned by sexual impotency or some physical impediment from the vulvar orifice to the ovaria. (2), Cases of true sterility, or conceptive incapacity from deficiency congenital or acquired, structural disease, arrested developments, supra-involution, etc., of the uterus, or from analogous morbid conditions of its appendages. (3) Cases of barrenness from constitutional causes. (4) Cases in which the causes of infecundity were apparently moral rather than physical, such as sexual incongruity, etc.

According to this table the most frequent cause of sterility is stenosis of the cervical canal. He believes that the operative treatment of such cases simple as it is deemed by some, requires more consideration than it generally receives, and frequently proves worse than useless from the disregard of certain details and precautions which he considers essential. He recommends the use of a method of procedure and the adoption of instruments which he has found advantageous in the curative treatment of stenosis in 380 cases of obstructive dysmenorrhœa and sterility traceable to this cause.

The essential features of the method of treatment are the separation by cutting and simultaneous forcible expansion of the affected parts, followed by dilatation during the period of cicatrization, so as to prevent their subsequent contraction, and thus secure the permanent patency

of the erst occluded passage. To obtain this result he uses three instruments, viz., a special form of uterine director which can, generally, be introduced into any cervical canal however narrow, and along which a serrated, triangular-guarded knife is made to travel up through the os internum; and thirdly, a uterine dilator of great power, by which any required degree of cervical expansion may be effectually secured and accurately gauged.

The influence of uterine flexions in the prevention of pregnancy and the treatment adopted in cases of sterility dependent thereon are next described. So also is the management of aphoria when it results, as is frequently the case, from chronic endometritis. The methods found most serviceable in infecundity due to vaginal, uterine, and ovarian causes are briefly reviewed. More fully dwelt on is the subject of conceptive incapacity from morbid conditions of the fallopian tubes, as he regards stenosis, as well as occlusion of those ducts by vaginitis and its results, such as hydro- and pyo-salpinx, far more common causes of sterility than usually thought. He also holds that such tubal diseases may often be removed without the resort to the serious operative procedures as the removal of the uterine appendages, by some surgeons considered invariably necessary and by them freely employed in such cases. He therefore referred at some length to those less heroic measures, such as aspiration and catheterization of the fallopian tubes, the feasibility and successful results of which he said he had clinically demonstrated.

Finally, the question of sterility arising, as it not infrequently does, from constitutional disorders, and instances apparently irrespective of any physical cause, and the method of dealing with such cases, is discussed.

Dr. S. C. Gordon, of Portland, Maine, said he did not believe that cases existed where there was not enough canal for the semen to pass up. He believed with Dr. Madden that vaginismus had very much to do therewith. We must remember that we cannot raise large crops on barren soil. No one has done more for the relief of these conditions than Graily Hewitt, who is now with us. The uterus is in an abnormal position, and you must return it to its normal position, as is his custom to do so effectually with his pessary. Above and beyond this comes the fallopian tubes and ovaries. The points concerned are, first, vaginismus; second, uterine or pelvic congestion. He is convinced that it is the fallopian tubes and ovaries, more than the stenosis of the cervical canal that are at fault.

Professor Graily Hewitt, of London, England, described this method of treatment carefully, and

expressed his conviction that the good done was through the straightening of the uterus, not the dilatation.

Dr. Laphorn Smith, of Montreal, Canada, thought that in many cases the difficulty did not lie in the vagina, cervix, uterus, fallopian tubes, or ovaries, but in the testicle.

Dr. Daniel T. Nelson, of Chicago, Illinois, thought with Dr. Smith that in many cases the male was at fault. If the mucous membrane of the female is pale, anæmic, contracted, cicatricial, containing little blood, the sperm is not nourished, or if so, only for a few days. Sea-bathing often does good.

Professor A. Reeves Jackson, of Chicago, Illinois, read a paper on

THE MODERN TREATMENT OF UTERINE CANCER.

Correct views of pathology and accurate diagnosis form the only rational grounds for proper treatment of disease. The modern treatment of cancer is based on the theory of its local origin, and implies the possibility of its complete removal. If this theory be true, failure to cure depends upon the essential inadequacy of the means used, or their untimely or inefficient employment. All remedial means are inadequate which have not the power to remove the diseased structures. The object of the treatment may be palliative or radical, the determination depending upon the location and extent of the disease and the general condition of the patient. Palliative measures are always available, while radical measures are not always safely applicable. Medical agents taken internally may be beneficial as palliatives, but are useless, so far as we know, in removing or modifying the progress of disease.

Conclusions: 1. Any operation for cancer which does not completely remove the disease will be followed by recurrence.

2. During life the limit of cancerous disease originating in any part of the uterus cannot be known; hence no operative procedure can guarantee complete removal.

3. In view of this fact, no operation is justifiable which greatly endangers life, provided other and safer methods are available.

4. Vaginal hysterectomy is more dangerous, in a certain sense, than the disease against which it is used; that is, a given number of patients afflicted with uterine cancer will live longer without than with the operation.

5. Other methods of treatment, attended by not more than one-sixth to one-fourth the mortality of vaginal hysterectomy, are equally efficient in ameliorating the symptoms and retarding the progress of the trouble, and they have been followed by as seemingly good results as re-

gards recurrence. Hence they should be preferred.

6. Vaginal hysterectomy does not avert or lessen suffering; it destroys and does not save life. It is, therefore, not a useful but an injurious operation, and as such is unjustifiable.

Professor Grally Hewitt, of London, England, read on

THE RELATIONS BETWEEN CHANGES IN THE TISSUES AND CHANGES IN THE SHAPE OF THE UTERUS.

In order to determine more precisely the true relation existing between changes in the tissues of the uterus and changes in its form and shape, concerning which wide differences of opinion prevail, it is evident that the initial stage of these changes offer the widest field for inquiry.

In describing uterine tissue-changes, the term "chronic metritis" is generally employed. It is desired to call attention to a tissue-change sometimes observed on or soon after the arrival of puberty, especially in young women who have been inadequately nourished, consisting in undue softness of the uterine tissues, and associated with them in the beginning of uterine suffering. This undue softness is not "inflammatory" in its nature. It is associated with great flexibility of the uterus, and generally with marked flexion. The author first described it ten years ago, and has repeatedly remarked it since. It has recently been noticed by Dr. Charles D. Seudder, under the term "mollities uteri."

The recognition of the liability to occurrences of this initial change in the uterine tissues is to be regarded as very important, in the explanation of the origin and increase in degree of flexions of the uterus. In such cases the uterus being abnormally flexible, the flexion may be easily and gradually intensified by any ordinary exertion, but will be more likely to be much exaggerated and perpetuated by any severe and suddenly acting mechanical disturbance. The process by which the uterus becomes permanently flexed may thus be slow or rapid.

Hardening of the uterus occurs sooner or later. After hardening, the flexion is persistent.

In some few cases the flexion may be persistence of a congenital condition, or due to absence of developmental growth at the time of puberty without undue softness being present.

In multiparæ a somewhat analogous condition is present in what is known as "defective uterine involution," the uterine tissues being soft and wanting in resistance. As is generally admitted, slow flexions frequently originate at such times and under such circumstances.

The author contends that the interference with

circulation present with uterine congestion is, in most cases, due to association of a weak blood-current and mechanical compression of uterine tissue, due to flexions present in such cases. The uterus being unduly soft, plastic, and mouldable, takes a flexed shape, which often becomes perpetuated by the hardening process described by Jacobi as the result of chronic metritis. One consequence of the latter is the presence of sclerosis of the uterine parenchyma. It is to be remarked that the incidents of some of the cases related by Jacobi favor the view that the flexion and displacement were operative in producing the menstrual sub-involution, rather than the cervical catarrh, which Jacobi assigns as the principal cause.

As regards endometritis, he considers the condition so described as more generally due to congestive hypertrophy of the uterine lining, and to retained irritating secretion, and that, excluding gonorrhœal and syphilitic cases, the endometritis is secondary rather than primary.

SECOND DAY—AFTERNOON SESSION.

Professor W. H. Wathen, of Louisville, Kentucky, read a paper on the subject,

RAPID DILATATION OF THE CERVIX UTERI.

The author had learned by experience and observation of the bad results from efforts to dilate the cervical canal by tents, or to enlarge or straighten it by incisions to cure dysmenorrhœa and sterility. He wished to call attention to the more satisfactory means of rapid dilatation with the bivalve or double-bladed dilators now in use, and especially to the substitution of an instrument of his device for Goodell's modification of Ellinger's dilator. If tents were used, he preferred the tupello to any other variety, it being less apt to cause septic inflammation than the sponge, and dilated more rapidly, regularly, and better than the tangle. He referred to endometritis, pelvic hæmatocele, pelvic cellular or peritoneal inflammation, septicæmia, pyæmia, and tetanus, as complications accompanying or following the use of tents, and did not believe that any good results, apparently, were permanently obtained. He claimed that the two-bladed dilators are relatively aseptic and are easily used; complete the operation at one sitting, and that the dilatation is comparatively free from immediate or subsequent dangers. It nearly always cures the dysmenorrhœa, and often removes the causes of sterility.

He thought the results of the incision of the cervix up to the vaginal junction, or through the os internal, anteriorly, posteriorly, or bi-laterally, even more unsatisfactory than those following

the use of tents. He dilates the cervix in his office, without a local or general anæsthetic, to the extent of half an inch, and allows the woman to walk or ride home a few minutes after. In dilatations of from three-quarters to one inch, he gives a hypodermic injection of morphia and atropia, then brings the patient under the influence of chloroform before operating. He urges great cleanliness, and all means to prevent septic infection. He uses three sizes of dilators, the largest the one he devised. He explained the points of supposed superiority over Goodell's.

In conclusion, he urged that the operation should not be performed if there is any pelvic inflammation or trouble in the tubes or ovaries; and never, in any case, until we are reasonably positive that the cause of the trouble is in the cervical canal.

Dr. A. Martin, of Berlin, Prussia, said that the dilatation of the uterus as an operation had undergone remarkable changes since its origination. The instruments shown by Dr. Wathen are an improvement. The great object is to open up the internal os. The degree of dilatation may be required to be less in some cases of small cervix. It is a question whether we have not been dilating in too many cases. He would not recommend that we go back to laminaria and sponge-tents.

Dr. S. H. Weeks, of Portland, Maine, claimed that every case of dysmenorrhœa was not due to mechanical obstruction of the cervix. The ovaries and tubes have much to do with it, and in his experience have been oftener at fault than the cervical canal. He was surprised at the freedom from danger reported in this operation. Professor Goodell has reported one hundred cases with no bad result. These instruments are not devoid of danger, and bad results may come.

Dr. C. R. Reed, of Middleport, Ohio, thought it quite puzzling to the young gynæcologist to tell what to do, the testimony being so conflicting. Some authors reported that there never had been any bad results in the few hundred cases that they had operated on; others had frequent fatalities. He has more hesitancy in operating now than formerly. We cannot predict what the result will be in a given case.

Dr. Goelet, of New York, N. Y., thought that the term rapid dilatation given to the operation was a misnomer. It had come into use to distinguish it from the dilatation by sponge or laminaria-tents.

Dr. Steason, of North Carolina, performed dilatation many times a year, for the past ten years. He keeps his patients in bed but two days. He has never had any fever follow, and has not used any antiseptic except soap and water.

He uses a glass rod to keep the canal open much the same as does Dr. Goelet, leaving it there sometimes as long as a week. He did not believe in the superfluous use of so much antiseptic.

Professor A. Reeves Jackson, of Chicago, Illinois, objected to the operation, because it did not do any good, at least permanent good.

Dr. Hadley, of Australia, never uses sponges and laminaria in dilatation, which he reviewed in extenso.

Dr. Lawrence, of Bristol, England, had used sounds constantly for years. His patients are constantly coming back. In the unimpregnated uterus, with proper precautions, this treatment can be used but must not be left in too long. He uses gelatine-coated sponge-tents, previously saturated with carbolic acid.

Professor Wathen, in conclusion, said as to the question concerning his operating at his office, he did it without any concern, and no anæsthetic. As to Emmett's opinion, we will concede a great deal to him in gynæcology, but he does not see how Emmett can be taken as an authority in this subject, seeing that he has not performed the operation, condemns it in toto, and will have nothing to do with it. The happy medium in this, as in other cases, is the thing to follow. No one would dilate for dysmenorrhœa caused by cellulitis or inflammation. The operation can be performed to straighten the neck of the uterus, and we can shorten the neck of the uterus by dilating the cervix and without amputation.

SECTION ON OPHTHALMOLOGY.

SECOND DAY—MORNING SESSION.

Mr. Henry Power, of London, England, presented a paper entitled

MICROBES IN THE DEVELOPMENT OF EYE DISEASES.

After a historical sketch of the earlier researches of Pasteur and those who followed immediately after him in the discovery of the nature and modes of propagation of microbes, and the demonstration of Huxley and others that diseases were developed by these organisms, and that they would grow and form colonies in especial situations, the reader went over the discovery of the micrococcus of syphilis and the gonococcus of ophthalmia. Chalozion, pterygium, blepharitis ciliaris, purulent conjunctivitis, keratitis, optic neuritis, cerebral meningitis, may be considered to be the result of microbic development. The factors in the production of these effects may be as follows:

1. They may first penetrate into the tissues and use up the pabulum necessary for their growth.

2. They may use up the whole of the oxygen, and so deprive the tissue of a necessary element; or

3. They may throw out what we may call ptomaines, poisonous products.

He related a case of a gentleman who, after a fatiguing walk of some hours, had a sudden accession of pain in the eye and developed an acute conjunctivitis. His opinion was that, though the tissues in a state of health were able to resist the attack of the ordinary microbes, as found in the air of cities and dense populations, that when this power of resistance was diminished by fatigue they were able to effect a lodgment and cause disease. He spoke of the experiment with a long tube, coated inside with agar agar or gelatine, through which microbic air was passed, showing that different varieties of microbe settled and formed colonies at different parts of the inclined tube, illustrating the fact that microbes were heavy enough to settle, and in different degrees.

The lessons which he proposed to draw from this were, to avoid all conditions which may lower the condition of the system, remove the patient from the densely populated parts, and in this connection, remember that it has been shown that at sea, at a certain distance from land, the air contains absolutely no microbes. Of course, in crowded ships this condition does not obtain.

Dr. Abadie, of Paris, France, made a few remarks on the absolute necessity of clean instruments, and cleanliness in regard to all accessories, in eye operations, and was followed by Dr. N. Monolescu, of Bucharest, in the same strain.

Dr. Heyl, of Philadelphia, Pennsylvania, said that it is evident that two general errors in regard to the subject have been developed. One is, that if a remedy will arrest the progress of the microbe in a gelatine solution, it will be applicable to the diseased conditions produced by that microbe, and also that any antiseptic may be used one for another. The microbe attacks the older and feebler cells in purulent conjunctivitis, and nitrate of silver is of use in destroying these old cells and leaving only the young and vigorous, that are able to resist the microbic attacks. The exacerbations occur as these young cells become older and feebler, and are again cut short by the silver application. Diphtheritic follows closely the purulent form in course and causation in this connection.

He found the reason for destructive changes in the cornea in these affection« in the different application of the epithelial layer to the subjacent tissue. This was also a factor in heme-

ralopia, the disease being considered as an epithelial mycosis, the palpebral epithelium being lubricating while the sclero-corneal is intimately connected with the function of vision.

Hypopion keratitis is an affection of the lymph itself. There has been a solution of continuity and the infection gets into the eye. Thus also, in cataract extraction the wound lays the eye open to the approach of the microbe. In kerato-hypopion and abscess, a good result was obtained by the use of a salve of agnine having incorporated oleo-resin of cubebs. The application seemed to be quite painful, the patient sometimes being kept awake all night by it. A good application is a salve of red cinchona applied on the conjunctiva. A satisfactory remedy in kerato-hypopion is the application of iodoform to the ulcer.

Dr. B. J. Baldwin, of Montgomery, Alabama, hoped that Dr. Power would also present the surgical side of microbe infection, which is now the liveliest question in eye surgery. He wished to present the other side of the case. In cataract operations he used no protection against the invasion of microbes, except to wash the patient's eye and face. In old hospitals it may be as well to wash and use all these precautions, but in new ones simple attention to cleanliness only is necessary. Dr. Baldwin was doubtful whether any better results were obtained now than before the introduction of antiseptics in eye surgery.

Dr. Landolt, of Paris, France, was astonished to see how little attention is paid to antiseptics in eye operations, and that we know too little of bacteria in eye affections. His experience was in favor of 1 to 5,000 solution of sublimate in extractions. He saw no objection to the solution. It did not prevent union or damage anything.

Professor D. S. Reynolds, Louisville, Kentucky, remarked that he had not for a number of years had suppuration of the cornea after cataract extractions. He insisted on absolute cleanliness, and, where that could not be secured, declined to operate.

Professor P. D. Keyser, Philadelphia, Pennsylvania, remarked that the main argument in favor of antiseptics is its success in operations on all parts of the body all over the world. His predilection was for a saturated solution of boracic acid, and he believed that irritation was caused by the mercuric solution.

Dr. Galezowski, of Paris, France, thought antiseptics necessary in all eye operations, even in chalazion. He had seen in some cases very dangerous results from neglect of this precaution, suppuration of the eyelids, and destruction of part of the cornea.

Professor E. Smith, of Detroit, Michigan,

wished to speak on both sides of the question. He thought much was due to the cleanliness in operations. He dipped his instruments in alcohol, used saturated solution of boracic acid, and 1 to 5,000 bichloride. He believed that he had a short time ago saved an eye by antiseptics when it had been exposed several hours the day after operation in the immediate neighborhood of a suppurating surface.

Dr. Power, in closing the discussion, said that the remarks of some of the speakers had been somewhat away from the subject of the paper as he had intended it. He drew attention to the propagation of pure cultures from kerato-iritis, and the production of the disease in rabbits.

The practice of dipping instruments, etc., in solution of boracic acid was followed by him in his hospital practice invariably. He was inclined to think that sublimate in the proportion mentioned is painful. Dr. Baldwin's washing he considered to be really antiseptics. He thought Dr. Galezowski's case of suppuration after chalazion operation was exceptional. He very rarely uses a cataract-knife twice, but prefers to get a new and sharp one from the maker for each extraction. Sharpness and cleanness of cut are essential to a good result.

Professor P. D. Keyser, of Philadelphia, Pennsylvania, read a paper on

OPERATIVE TREATMENT OF SYNECHIAE POSTERIOR.

He stated that synechia were dangerous to the eye, as a rule, in proportion to the firmness of the adhesion. The danger consisted in the recurrent attacks of iritis caused by the dragging and stretching of the part, resulting in new adhesions, cyclitis, and perhaps atrophy, or sympathetic trouble in the other eye. Of operative procedures, he considered removal of part of the iris not advisable where the center of the capsule is transparent. After reviewing the various methods in use for breaking up the offending attachments, of which he believed Streatfield's method to be the most successful with a careful and skillful operator, he spoke of their dangers. He objects to Weber's hook, as being too large to manipulate easily and requiring a large opening in the cornea as well as the other methods with loss of aqueous, which prevents contraction of the iris. He exhibited a delicate modified hook, which he had used with success for a number of years. The method employed is that recommended by Streatfield, and a small opening is made with any cutting needle, affording opportunity of using the hook with as little loss of aqueous as possible. The adhesion having been

broken up, atropia is instilled, and a simple Liebrich bandage applied.

Dr. Galezowski remarked the operation was a very beautiful one, and in many cases afforded good results. He had in five cases of anterior synechia done an operation similar to this, but with a larger hook. The trouble that occurs afterward is that fresh adhesions are formed, and as well after iridectomy, which may go on to the production of cataract or irido-choroiditis. He had seen in many cases, after iridectomy, lymph exuded and vision destroyed. If the inflammatory action continues, he advised acupuncture and antiphlogistic measures, and when it has subsided then do the iridectomy, after two or three weeks.

SECTION ON PUBLIC AND INTERNATIONAL HYGIENE.

SECOND DAY—TUESDAY, SEPTEMBER 6TH.

Dr. J. A. S. Grant (Bey), of Cairo, read a paper with the title,

THE HISTORY OF HYGIENE IN MODERN EGYPT, in which he discussed the methods of hygiene as practiced by the Egyptians under the Viceroy Mohammed Ali and under the Khedive Tewfik Pasha, and as influenced by English dominion; to this he added some critical remarks and practical suggestions.

Dr. Grant also read a paper,

DENGUE IN SYRIA,

written by Dr. John Montabet, in which, and also from the discussion, it appeared that there was no essential difference as it occurs in that country and in the United States.

THE RELATION OF STATE MEDICINE TO MEDICAL JURISPRUDENCE

was the title of a paper read by Dr. W. L. Schenck, of Boise City, Kansas.

Dr. Richard H. Day, of Baton Rouge, Louisiana, read a paper in which he made

A REPORT OF AN INQUIRY INTO THE FACTS RELATING TO THE EFFECTS OF OVERFLOW OF THE MISSISSIPPI RIVER.

The paper contains facts and deductions obtained by addressing letters of inquiry to five hundred physicians residing in southern localities. It shows (1) that overflows, as a general rule, are injurious to the public health; (2) that they are more or less injurious according as the inundations are late or early in the season, and whether of long or short duration; (3) that their evil effects upon health are lessened or entirely antagonized by good natural or artificial drainage, and by copious showers of rain occurring during

the period of subsidence of the waters; (4) that rice culture is inimical to health only by reason of the improper and insanitary manner of its cultivation; (5) that, as a rule, it is perhaps true that the colored race is less susceptible to the injurious effects of overflows, and of marshy and malarial soils, than the white race. The writer then advises:

(1.) The use of rain-water, stored in large cisterns, both for drinking and cooking purposes.

(2.) That all swamp and wet soils subject to overflows, before being cultivated or settled upon, be cleared of trees, underbush, etc., to admit freely the sun's rays and the free circulation of the winds, and that thorough drainage be effected, so that rapid drainage and drying of the soil be not impeded.

(3.) That in the culture of rice, the common plan of keeping the fields covered for long intervals with stagnant water should be avoided, and that, in lieu thereof, frequent irrigation with fresher and purer water should be adopted, the growing crop being supplied thus as often as needed, and ditches so constructed as to let off the superincumbent water rapidly.

(4.) That to promote the health of laborers and residents in the river-deltas and lowlands the dwellings should not be less than four feet from the ground, the floors laid tight, and the doors and windows arranged to afford free ventilation, with galleries on all sides wide enough to prevent beating rains from wetting the rooms; that the houses should be erected on elevated ridges, so that water will not settle under or around them; that only a few shade-trees be allowed to grow to break the force of the direct rays of the sun, and all brush and undergrowth be removed, so as to facilitate the free movement of currents of atmosphere.

Finally, the writer advises the importance of rigid cleanliness of person and surroundings, and strict observance of general sanitary rules. The paper further showed that under improved methods of rice culture and management of lands subject to overflows, the frequency and virulence of disease incident to these localities had been notably diminished.

SECTION ON DERMATOLOGY AND SYPHILOGRAPHY.

SECOND DAY—MORNING SESSION.

STUDIES IN HIRSUTES.

Professor G. H. Rohe, of Baltimore, Maryland, read a paper on this, in which he directed attention to the theory of natural selection to account for an occurrence of an abnormal development of hair—a reversion of the system to the natural

ancestral type. He referred to the work in this field of Dr. Unna, who had shown that the antenatal type of hair, that which falls out soon after birth, and is replaced by a stronger, firmer growth, and accounted for the excessive development by the non-occurrence of this natural order.

Excessive hairiness in one race may not be considered hypertrichosis, when it would be in another. The principal interest for the dermatologist centers in the excessive development of hair upon the face, for which we have a sovereign remedy in electrolysis. The reader went over the histories of the noted hairy persons, giving many interesting facts regarding them—a remarkable feature in these cases is an abnormality in the development of the teeth. Usually only few teeth exist, and Darwin has noted the same feature in abnormally hairy dogs. The suggestion was made that the hairy growth in excess might be a compensation for the lack of dental development. Unna's theory of an arrest of development, though attractive, the author does not regard as proven.

Heredity, usually from the male line, is found in almost all cases in universal hirsuties, and many cases of hypertrichosis can be explained in the same way.

He related instances in his own practice where the children of hairy-faced parents also showed beards.

That the appearance of the growth is first noticed about the time of puberty is not singular, for other hereditary traits are developed at this time as well.

Dr. Unna, of Hamburg, Germany, regarded the paper as prudent, so far as the pathological portion was concerned. He stated that he upheld his theory, which he had put forth as a more scientific one than other theories which had up to that time been advanced.

He had not been able to study the skin histologically. This is the only way in which advances can be made. And he urged those who have an opportunity to make such studies.

The direction of hair-development changes after birth, and it would be interesting to secure portions of skin to examine for these changes in the different layers of the skin.

It is certainly an hereditary disease, but scientifically this is not a sufficient explanation.

Dr. Thin, of London, England, said he had looked upon the disease as due to a deficient physiological development.

There seems to exist a necessary proportion between the length and breadth of the body and the length and breadth of the hair, and any deviation from this proportion constituted an abnormal

mality. The perfect man develops hair in some parts and little in other parts. That hairy persons are strong is a fallacy.

Excessive hair upon the limbs indicates weakness and debility.

An imperfectly developed sexual being will produce an imperfect being.

A hairy lip indicates a woman who will not well carry out the process of childbirth, and he looked upon it as a flag of warning, and thought the removal of the hairs might not be such a great boon to humanity on that account. In bearded females there is a want of sexual differentiation.

Dr. Gottheil asked how the reader would explain the development of hair late in life, relating a case of excessive development of hair at the age of twenty-eight coincident with cessation of menstruation.

Dr. Ravogli, of Cincinnati, Ohio, said that the human race could be divided into classes by the nature of their hair. He had noticed that men have a greater development of hair upon the face and about the ears and nostrils at about the age of forty-five than in earlier life, and he believed that up to this time, or until the skeleton was perfectly formed, the calcareous salts were taken up by the bones, and after this period were appropriated by the hairy growth. If hair be burned we find salts of lime in the ash, and he thinks there is a relation between the quantity of calcareous salts and abnormal growth of hair.

Dr. Reynolds said that the question was an intricate one. He thought it an established fact that there are two forms of hirsuties, one hereditary and one produced by other causes. The deficiency of the teeth was not present in all cases. He had examined one of the hairy men on exhibition in this country and had found the teeth fully formed. He had observed sexual derangement in bearded females, and regarded it as bearing such a causative relation to the deformity as the same condition bears to acne.

Professor Rohé, in closing, said there were some cases not explicable on the theory of heredity, and he could not explain such cases as that mentioned by Dr. Gottheil. The statement made by Dr. Thin that excessive hair upon the body should be regarded as a sign of weakness, was new to him, and he was inclined to believe in the popular idea, that the man with plenty of hair upon the body was usually a strong man.

A NEW METHOD OF TREATING DISEASES OF THE SKIN LOCALLY.

Dr. Valentine Knaggs, of London, England, proposed as a substitute for ointments the employment of emulsions which upon drying on the skin form protective films. He had employed

these dressings for the past two years with gratifying results in eczemas and other non-specific exudations. The inunction of the body with fixed oils has been found of immense service, but they are not adhesive, and exuding fluids readily escape from the surface. There are two methods of rendering oily substances adhesive: 1. By adding to them resinous, gummy, or alkaline substances. 2. In making use of gum to combine or emulsify a fat with water.

Adhesive preparations, unlike oils, tend to arrest skin action. Thus tar, varnish, or collodion form an impervious covering. Ointments to which adhesive substances are added diminish skin action, but do not abolish it.

Well-made emulsions resemble milk or cream, are soluble in watery fluids, and are markedly adhesive, and are made by combining an ointment basis with water, a vegetable gum, and a suitable antiseptic.

Thus the formula preferred would read :

℞. Paraffine molle.....	℥j.
Pulv. gum acac.....	gr. 160
Boracic acid.....	gr. 16
Aque.....	ad ℥ij.

Stir until emulsified.

Bismuth, zinc, sulphur, or other medicament may be added as desired. Smeared over the skin, a film is formed, which is flexible and protective, and the antiseptics and medicaments have the best opportunity of exercising a beneficial influence.

The author called especial attention to the fact that all lint and textile dressings could be dispensed with. He did not expect these gum emulsions to displace older methods, but that they would serve a useful purpose.

In discussing the paper, Dr. Unna said that we were now in the period of transition, making our annual change of treatment. It was very well for us as specialists to discuss new treatments, but we should not give them to the general practitioner until we were quite sure that they were good, and especially should not confuse him with new treatments until we were quite sure that they were new. He had worked much with fixed dressings and varnishes, and some years ago had described such a varnish as had the reader of the paper. He was glad to confirm the reader's claim regarding the utility of the emulsion dressing, but could not concede to him that it was new, as there many other varnishes made with gums and fats. He did not believe that any varnish which is soluble in water can prevent a great of evaporation from the skin.

A NEW METHOD OF TREATING THE VEGETABLE PARASITIC DISEASES OF THE SKIN,
by Professor H. J. Reynolds, of Chicago, Illinois.

First, the parasiticide must be applied so as to reach the bottom of the hair-follicles in favus, ringworm of the scalp, and barber's itch. The reader proposed to apply the medicament to the diseased part and place over it the positive pole of an electric battery, and the negative upon some other part of the body, and induce the penetration of the solution to the deeper parts by a well-known law of elected physics. He uses a battery composed of a large number of small cells, such as is used for the removal of hairs. The strength of the current must vary with the sensitiveness of the parts—five to fifteen cells, according to the feelings of the patient. Where there is much hyperæmia the current must be weakened. Cocaine, applied in this way, produces anæsthesia of the whole scalp. The surface is first to be thoroughly cleansed. Then the sponge of the positive electrode is to be saturated with the parasiticide solution and placed over the diseased patch, and the moist negative sponge over the skin of some other part of the body. A one per cent. solution of the bichloride was the parasiticide employed in the cases reported. He had only had an opportunity to thus treat three cases, but all have been so successful as to give him great confidence in its usefulness.

Dr. Thin said he had been impressed with the great variety of remedies found in literature reputed to cure tinea tonsurans quickly. He regarded the strong solution of bichloride of mercury as dangerous to life, and also likely to cause permanent baldness, although it was the remedy most likely to cure the disease.

Dr. Juler, of Cincinnati, Ohio, said in cases of favus we usually expect to find a change in the condition of the patient's general health. He regarded it as an extremely obstinate affection, and was inclined to look upon hasty cures as errors in diagnosis.

Dr. Davis, of London, England, thought that in America skin diseases were more easily cured than in England, from the reports of rapid cures, especially of ringworm and the like.

Professor Rohé thought perhaps the differences in results were due to the differences in application. He thought the bichloride, in solution of 1 to 1,000, sufficient if applied often enough, before the new spores had an opportunity to be produced. Fully developed organisms resist much less than the spores. So long as one spore remains undestroyed, so long will the danger last. The hyposulphite of soda will destroy, in a short time, the organism of tinea versicolor.

Dr. MacGuire, of Louisville, Kentucky, said chrysarobin in gutta percha had succeed well in

sixteen cases of tinea trycophyton recently treated by him.

Dr. Ravogli said if epilation was practiced, the parasiticide would reach the spores and the case could be sooner cured.

Dr. Yeamans said the whole matter turned upon whether we can or cannot reach the spores. He believed that it was unnecessary for any case of favus to exist under proper scientific treatment for over four weeks, epilation being practiced daily.

In closing, Professor Reynolds said it was an established fact that cocaine could be applied to the scalp so as to thoroughly anæsthetize the entire thickness of the scalp. Now the question is, whether a parasiticide applied in this way will not act equally well. He thought the electricity might have some influence in destroying the spores.

SECTION ON GENERAL MEDICINE.

SECOND DAY—AFTERNOON SESSION.

Dr. Josef Körösi, Director of the Communal Statistics of Budapest, Hungary, read a paper on

THE PREVENTIVE POWER OF VACCINATION,

with a critical review of the statistics of vaccination. After gathering all the different modes of argumentation used up to the present time to attack or to defend the protective power of vaccination, he arrived at the result that the statistical base of these proofs is much weaker than is generally supposed by men of science who could not enter into an examination of the value of the different statistical methods. Even when the direct proof could be furnished, and even when we would find in this way that the morbidity or mortality of the non-vaccinated is the greater one, the anti-vaccinators reply that the whole of the non-vaccinated represents a weaker totality, consisting of the poorer elements, the sick and weaker children; and that this totality is naturally more exposed to get any sickness, but not in consequence of the lack of vaccination, but of the lack of vital powers—an argument which threatens to subvert all statistics of vaccination.

Dr. Körösi shows us that this difficulty can be settled. If we knew what is, for instance, the general lethality (Dr. Körösi distinguishes between mortality and lethality. Mortality is the chance for each living person to die; lethality is the chance for those who are already sick to die. The two notions are widely different but, notwithstanding, often confounded. The mortality of small-pox, for instance, rose to one per centum, the lethality might rise to sixty or seventy per centum) of the non-vaccinated, we could learn whether their special small-pox lethality is

greater; this difference ought to be attributed exclusively to the lack of vaccination. But to ascertain the general lethality of the vaccinated and non-vaccinated people, it would be necessary that the hospitals should state, not only for the small-pox patients, but also for each case of sickness—even the surgical cases not excluded—whether they were vaccinated or not. This innovation was introduced in 1886, at the proposition of Dr. Kőrösi, in nineteen hospitals of Budapesth and provincial cities in Hungary. Here the results of the first year's observation, embracing more than twenty thousand cases, showed the general lethality of the vaccinated patients to be eight per centum, and that of the non-vaccinated thirteen per centum.

Thus the assertion of the anti-vaccinators, that among the non-vaccinated the lethality is probably a greater one, is found to be true. But among the small-pox patients the lethality of the non-vaccinated rose to 6.66 per centum; the lethality of the non-vaccinated should thus represent about ten per centum, but in fact that lethality is not less than 49.68 per centum. No doubt it was wrong to regard the whole of this increase (nearly eight hundred per centum) as the consequence of the non-vaccination. The result is a product of two factors; on one hand of the weaker constitution of the non-vaccinated, and on the other hand of the lack of vaccination. Knowing now the value of one factor, we can calculate what has to be attributed to the other. So we can state that for the non-vaccinated small-pox patients the chance of dying is raised *exclusively by the lack of vaccination* to five hundred per centum.

The same observation made it possible to state also in what degree the morbidity of the non-vaccinated is raised. The result is that the lack of vaccination causes three and a half times more cases of small-pox.

To apply the new method on the mortality, it would be required that at each case of death—and not, as is usual, only at the deaths caused by small-pox—it should be stated whether the person was vaccinated or not. This new regulation has been introduced at Budapesth since 1886; the coroners have to inquire the fact regarding vaccination in each case of death. As also nine other Hungarian cities agree to introduce this new regulation, the observations of Dr. Kőrösi embrace a population of 717,195 persons. The results of the first year show that the chance to die by small-pox is raised by six hundred per centum for each non-vaccinated person exclusively in consequence of the lack of vaccination. This new and fruitful method of investigation has finally been applied also to the very important

problems of inoculation of syphilis, erysipelas, tuberculosis, etc. In the ordinary statistics of vaccination it is nearly impossible to answer this question. If a man who has been vaccinated in his childhood gets tuberculosis later, how could we know whether his sickness had been caused by vaccination or any other cause? But the new method furnishes the answer. If tuberculosis, syphilis, etc., have been caused by inoculation we ought to find among the vaccinated people more cases than among the non-vaccinated. It is now ascertained that—at least in the first year of observation—there was to be found no influence of vaccination upon syphilis or tuberculosis. But what he found was that for the children the number of the cutaneous diseases is raised by vaccination, but only by thirteen per centum. Making up now the balance of vaccination and counting its benefits on the credit, its damages on the debit side, it is found that among a population like that of the United States the vaccination would save annually 120,000 lives, while the number of children dying from cutaneous diseases, etc., caused by vaccination, might make 300, so that the balance is an extremely favorable one. Vaccinating is an operation, but who would prohibit a life-saving operation where the chances of danger are so extremely few as above mentioned?

Dr. Kőrösi finished his paper with the remark that after having now furnished direct answers on the protective power of vaccination, we might safely extinguish doubts about the blessings of Jenner's important discovery, which, after the ingenious generalizations of Pasteur, has lost the character of an inconceivable and quite extraordinary appearance, and which must be regarded as one of the most beneficial results of happy empiricism and science.

Dr. C. A. Leale, of New York, N. Y., expressed himself as greatly interested in the paper, especially for the valuable statistics, evidently the result of so much patient labor. He referred to a commission which had been appointed under his supervision to inquire after the health of the sick children in New York, with the result that there was not a case reported which had had small-pox. This he attributes to the good virus and enforcement of vaccination among all classes.

Twenty years ago he was called to investigate two cases of death alleged to be the result of small-pox, (?) but these were evidently from erysipelas due to a scratch; this was rendered more positive, as others were vaccinated with the same virus without harm. He once saw a child where it was certified that the child was

suffering from the secondary stages of syphilis due to vaccination.

Dr. W. M. Whitmarsh, of England, inquired what virus was used, humanized or bovine.

Dr. Körösi said it depended upon the physician.

Professor John F. Lynch, of Baltimore, Maryland, said that it was only cranks who will contend that vaccination does not prevent and modify small-pox. Animal virus will always be safe and ought always to be used.

A vote of thanks was extended to Dr. Körösi, and a committee appointed to consider his paper.

Dr. Körösi said that statistics reported against vaccination were greatly falsified.

Dr. W. M. Whitmarsh, of London, England, read papers on

VACCINATION AND ON PASTEUR'S TREATMENT.

He first considered the subject of vaccination, giving a *résumé* of its history from the time of Jenner. He was not in a position, even from a very large experience, to state that vaccination is a preventive against variola, although many believe it to be so. Vaccination does, however, lessen the liability, even though it may not give a complete immunity from disease. Forty years ago sixty per centum of the people in England were to be seen pitted by small-pox, while at the present day there is hardly one per centum.

In England it is compulsory that all children over three months old shall be vaccinated. Such a law being in vogue, it is the duty of the state to use special care in the selecting of good lymph. This evidently has not been done, the authorities at present depending upon humanized virus, which they dealt out gratuitously to the poor.

That vaccination may transmit disease is conclusively proven in the case of Dr. Cary, who syphilized himself in endeavoring to prove that such a transmission was impossible. Again, there were the instances of the large number of children in Sweden, and the body of soldiers in Algiers, who were similarly infected.

Educate people up to the fact that vaccination, when properly performed, is a good measure, and then their common sense will make them adopt it. During the year ending September, 1885, there were in England 2,806 persons prosecuted for refusing to comply with the law and be vaccinated.

As to how many punctures should be made, and the frequency with which the vaccination should be repeated, there is a variety of opinions. It seems probable that seven years is the longest time allowable before revaccinating.

PASTEUR'S METHOD.

In the paper entitled "Pasteur's Treatment" he reviewed very elaborately the method and prin-

ciple involved in the preparation of the virus for inoculation. The various instruments used were presented, and their use explained; also a solution, hermetically sealed, containing the prepared virus. Sterilized beef-tea is the vehicle used to contain the virus.

As to Pasteur, he is undoubtedly a first-class scientific chemist, but doubtless he knows little of the art of surgery or the science of medicine. So far as his operations are directed he is constantly changing his methods, thereby showing that he is somewhat doubtful of his standpoints.

It is proved without doubt that dogs shut up in a room and given but a small quantity of water will go mad. In the cases presented and operated upon in Pasteur's laboratory it is extremely doubtful as to whether the patients have had hydrophobia, and consequently it is difficult to determine the curative efficacy of his inoculations. Pasteur originated a disease in rabbits, which he called rabies. It is important, since some of his cases have been fatal, that the disease be not originated, by this process of treatment, in a person supposed to be, though not actually, suffering from the disease.

There were cases in which Pasteur's treatment had failed, even in a case in which there had been no delay in coming under the treatment.

The only way to settle the question is by the means employed fifty years ago in reference to small-pox, and that was upon convicts, allowing them their choice between their sentence and becoming the subject of experimentation.

It is also necessary to enforce more stringent laws in reference to dogs. They ought to be registered, muzzled, and more carefully looked after by examining veterinary surgeons.

Great credit is due to Pasteur for his earnest labors, and it is to be hoped that, if he has not already, he may eventually make a new discovery.

Dr. C. A. Leale, New York, N. Y., expressed his great interest in the papers, and spoke on the latter. As medical officer for several large benevolent institutions for sick children he had coming under his observation from 18,000 to 20,000 sick children annually. These children were sent from all parts of the city, and all were carefully examined by competent medical men. As these children are only the sick ones of the families, they represent the number taken from at least 100,000 children in the city and surrounding places. He had never seen, or had reported to him, a single case of hydrophobia, although hundreds of these children had at different times been bitten by dogs. He had had similar experience in dispensary practice.

He is convinced that much harm has been done

by unnecessarily exciting those bitten. It is to be sincerely hoped that the profession will not, with our present knowledge, resort to Pasteur's method of inoculation.

Dr. W. Welch, Philadelphia, Pennsylvania: Believes vaccination possesses the power of absolutely preventing small-pox. To be entirely free from danger it must be recently and properly done, and under such circumstances he had never seen any bad result. In his hospital experience he had had 5,000 cases come under his observation, and after vaccination he allowed attendants to wait upon the sick patients without their contracting the disease. Humanized virus is preferable, especially such as has been long humanized through several inoculations. It is well, with long humanized virus, to make several inoculations, as virus thus attenuated does not make so profound an impression.

As to durability, it does run out. It was noticeable that among the cases admitted there were no, or very few, children brought in with the disease who had been vaccinated. One of these died.

The dangers of vaccination are two: syphilis and erysipelas—the latter often being caused by carelessness on the part of the physician.

SECTION ON OBSTETRICS.

SECOND DAY—AFTERNOON SESSION.

Dr. James C. Cameron, of Montreal, Canada, read a paper entitled

THE INFLUENCE OF LEUKÆMIA ON PREGNANCY.

In this he showed, by a *résumé* of the literature, how incomplete our knowledge of the subject still is. We knew that cases were most frequent in women, especially during pregnancy or at the climacteric. Its effect upon the reproductive organs was but little known, and barely mentioned in any work. The disease was apt to begin during the latter part of pregnancy, and indeed, in many of those who became pallid and anæmic during pregnancy, though only temporarily so, the ratio of white to red blood-corpuscles was much increased.

A case which he reported was unique, in that pregnancy recurred successively during the progress of the disease, and was also interesting in showing a marked hereditary tendency—the parents of the patient and her six children being all leukæmic. The splenic tumor was first noticed during a pregnancy, and increased markedly in size during each successive gestation, the disease running a remarkably chronic course. A fact worthy of note, was that the red blood-corpuscles of a child born when the disease was well marked,

were in the normal proportion in the vessels of the child, even above the normal in the placental artery, but much diminished in the placental vein, showing that the blood actually lost red corpuscles while passing through the placenta. In the placental sinuses the red globules were fewer than in the general circulation of the mother.

Professor Charles Warrington Earle, of Chicago, Illinois, recalled two cases of extreme anæmia, together with great emaciation, occurring during pregnancy, and which at the autopsies were found to be caused by chronic inflammation of the pancreas, all other organs being normal. The pancreas was white and hard, and the microscope showed a great increase in the connective tissue. He thought that this condition might explain some cases of pernicious anæmia, and proposed for it the name of pancreatic anæmia.

Professor A. Charpentier, of Paris, France, read a paper entitled

L'UREMIE EXPERIMENTALE.

In this he detailed the results of certain experiments made by him on the artificial production of uræmia in gravid animals, by the injecting into the blood, at intervals, of urea until it was present in excess. In these cases the death of the fœtus preceded that of the mother, and the quantity of urea in its veins was in excess of that in the mother's. The death of the fœtus was caused by this excess of urea in its circulation.

Professor W. T. Lusk, of New York, N. Y., thought the paper illustrated a most important point. The explanation of the manner of death of the fœtus was certainly ingenious. He had supposed that its death was due to the presence of carbonic dioxide in the blood of the mother.

Dr. Duncan C. MacCallum, of Montreal, Canada, said that in marked albuminuria with severe symptoms, we were justified in inducing premature labor, and if the death of the child was apt to occur, as had been shown, it was another strong reason why we should not delay too long.

Professor Alexander R. Simpson, of Edinburgh, Scotland, read a paper giving the results of his efforts to secure

UNIFORMITY IN OBSTETRICAL NOMENCLATURE, presenting a schedule showing the proposed changes, and detailing some of the opinions he had received from eminent obstetricians. The subject had been opened at the Eighth International Congress, and he hoped this one would take some definite action in the matter.

After animated discussion, a committee, consisting of Professors Miller, Simpson, Lusk, and King, was appointed to consider the matter, and report on Friday, the 9th inst.

Professor William T. Lusk, of New York, N. Y., presented a paper on

THE PROGNOSIS OF THE CÆSARIAN SECTION.

If it were proposed to beat out the brains of a living child, the suggestion would be received with horror, no matter how great the surgical emergency might be, and yet, with the child unborn, craniotomy was often done for insignificant reasons. A careful *résumé* of the statistics showed very favorable results, even with the old method, when the surroundings were favorable, and the operation was performed with proper surgical skill and accessories. Death was most often the result of an avoidable cause. The reader compared the brilliant results obtained abroad with the mortality attending recent American operations, and thought that a more favorable prognosis could not be expected until we had learned to recognize the conditions requiring the operation before the time when it should be done.

Defective diagnosis was the great bar to progress in this country, and all practitioners should qualify themselves to recognize the various degrees of pelvic deformity. An operator should possess at least a theoretical knowledge of the technique of the procedure, and while it was not desirable that any one should attempt to perform the section, men capable of doing the operation could usually be found, even out of the larger cities.

The paper closed with a plea for Cæsarean section as opposed to craniotomy, even in pelvis with a conjugate of three inches.

Dr. M. Sanger, of Leipsic, Germany, presented a paper on

THE CÆSAREAN OPERATION,

which was read in abstract.

Sanger's operation was to be preferred to the Porro when the child was living and could not be delivered by any other operation, or when the child was dead and could not be delivered by craniotomy or embryotomy, or could be so delivered only with the greatest danger to the mother. Good results could be obtained by the Cæsarean section only under certain conditions and when the operation was performed according to certain approved technical principles. These conditions are: 1. The maintenance of an aseptic condition in the uterine cavity, and, 2, early performance of the operation.

Sanger thinks that the cause of the greater American mortality is delay, and only trying the section when other operations have been unsuccessful. He lays stress on the following:

(1) Antiseptic precautions as in other laparotomies.

(2) The abdominal incision should be made through the linea alba over the middle of the fundus, about sixteen centimeters long.

(3) It is not advisable to evert the unopened uterus, as it requires a large incision, except where the fœtus is dead or there are not sufficient assistants.

(4) The elastic ligature is not to be used before the uterus is opened, as it endangers the life of the child, or may incarcerate parts of the child, so that it may have to be loosened at a time when the operator requires his hands for more important matters.

(5) The uterus is to be opened in situ, by a frontal median incision; cut through placenta, or push it to one side; extract child by the legs; if head is caught, extend incision upward, to prevent any downward laceration of the uterus. At the same time, an assistant is to press the abdominal walls toward the uterus to prevent prolapse of intestines or flow of fluid into the abdominal cavity.

(6) The danger from hæmorrhage is not so great as is commonly supposed. By pressure on the inferior segment, and by slight torsion or flexion of the uterus and broad ligaments, the bleeding can be much lessened. Elastic ligature is to be avoided if possible.

(7) Care must be taken in regard to three points in suturing; 1. Accurate union of the incised surface of the uterus by numerous sutures, where by a broad and close union is obtained. 2. Avoidance of suture-canals in the uterine cavity. 3. Especially careful union of the serous surfaces. Silk is preferred to silver-wire, because silk can be absorbed. Excellent results can be obtained with catgut prepared in oil of juniper, chromic acid, or mercuric bichloride.

Sanger's indications for the Porro operation are: When the flow of secretion from the uterus is impeded by stenosis of the cervix or vagina, or, in some cases of tumors of the corpus uteri, myomata, etc. He prefers Cæsarean section where the myomata are retro-cervical or retro-vaginal, because the removal of the whole mass is then impossible or dangerous and the removal of the uterus does no good. In osteomalacia he prefers the Cæsarean section with removal of the ovaries to the Porro operation. He takes exception to Martin's recommendation to do the Porro operation in cases in which the puerperium becomes dangerous to the patient, as in far-advanced affections of the heart or lungs. He thinks such a case has as good a chance of recovery after Cæsarean section as after Porro's operation.

Professor W. H. Wathen, of Louisville, Kentucky, read a paper on

ABDOMINAL SECTION FOR REMOVAL OF THE FŒTUS.

He urged that abdominal section should be done in all cases, instead of craniotomy, where the child was living. Craniotomy was often unnecessarily done. The maternal mortality was not greater in selected cases of Cæsarean section than after craniotomy. In moderate degrees of pelvic contraction we should induce premature labor, if the condition was discovered early. Abdominal section should become an operation of election and not a last resort. The uterine suture and careful toilet of the peritoneum were indispensable.

SECTION ON PATHOLOGY.

SECOND DAY.

The president read a paper on
THE PATHOLOGY OF REYNAUD'S DISEASE,
and reported an unusual case.

Dr. E. O. Shakespeare, of Philadelphia, Pennsylvania, followed with a paper entitled

EXPERIMENTAL RESEARCHES CONCERNING THE INFECTIOUS NATURE OF TRAUMATIC TETANUS.

Professor Henry Sewell presented a paper on
EXPERIMENTS ON THE PREVENTIVE INOCULATION OF RATTLESNAKE VENUM,

which was read by Professor Vaughan, of Ann Arbor, Michigan.

Dr. De Solomon, of Michigan, read a paper on
THE PRODUCTION OF IMMUNITY BY THE HYPODERMIC INJECTION OF STERILIZED CULTURES.

SECTION ON PHYSIOLOGY.

SECOND DAY.

Dr. W. D. Halliburton, of London, England, read a paper entitled

COMPARISON OF THE COAGULATION OF THE BLOOD WITH RIGOR MORTIS.

The coagulation of the blood can be prevented either by cold or by the admixture of certain neutral salts. Kühne was the first to show that cold prevents the coagulation of the muscle plasma of frogs. By means of methods very similar to those employed by that observer, the muscle plasma of warm-blooded animals can also be prevented from coagulating by the same agency. Mixture of the muscle plasma with solutions of certain neutral salts will also prevent its coagulation; and, as in the case of salted blood plasma, dilution of such salted muscle plasma brings about the formation of a clot of myosin; this occurs most readily at the temperature of the body, and is entirely prevented by a

temperature of 0° C. (?) It is hastened by the addition of a ferment prepared from muscle in the same way as Schmidt's fibrin ferment is prepared from blood. Rigor mortis is thus the result of a ferment action similar to that which converts fibrinogen into fibrin; but the myosin ferment is not identical with fibrin ferment, as it does not hasten the coagulation of salted blood plasma, nor does the fibrin ferment hasten the coagulation of muscle plasma.

The myosin ferment is either identical with, or closely allied to, one of the proteids of the muscle plasma, which has the properties of an albuminose.

Though it is thus seen there are very striking resemblances between the formation of fibrin and that of myosin, there are also certain differences, of which the most important are the three following:

1. Myosin can be easily re-dissolved by solutions of neutral salts, and this solution can be made to undergo re-coagulation by dilution and addition of myosin ferment. The passing off of rigor mortis seems to be due to a similar re-conversion of myosin into myosinogen. Fibrin, on the other hand, cannot be made to undergo such a re-coagulation.

2. The formation of myosin is accompanied by the formation of lactic acid. The same acid is formed when the re-coagulation of pure myosin occurs, and its source is thus shown to be a proteid one, not a carbohydrate, as some have supposed. Fibrin formation is not accompanied by the development of any acid, so far as we are aware.

3. The conversion of myosinogen into myosin is not accompanied by the formation of another globulin, as is the case in the conversion of fibrinogen into fibrin.

Dr. Thomas W. Poole, of Lindsay, Ontario, read a paper entitled,

THE NECESSITY FOR A MODIFICATION OF CERTAIN PHYSIOLOGICAL DOCTRINES REGARDING THE INTER-RELATIONS OF NERVE AND MUSCLE.

1. He hoped to show, on the highest physiological authority, that muscles of the involuntary class pass into a state of spasm or contraction, not when their motor nerves are stimulated, but when these nerves are cut, or are paralyzed, or dead.

2. That the same is true of the muscular bands of the arterial coats.

3. That the statements given in our physiological works as to the excited condition of the nervous centers in such states as asphyxia, and the theories of Traube and others in explanation

of the Cheyene-Stokes' respiration, in which impure, venous blood, loaded with carbonic acid and deficient in oxygen, is assumed to stimulate and excite the nervous centers, are absurd, and have been put forward solely to meet the exigency of an erroneous theory.

4. His thesis entered into what he deemed conclusive evidence that electricity, as employed for physiological and therapeutical purposes, is not a stimulant but a paralyzing agent to nerve-activity, and that the undoubted beneficial effects of this agent may all be satisfactorily accounted for in strict accord with its role as a paralyzer.

5. The same applies also to strychnia.

6. The action of the vascular sedatives, aconite, ergot, etc., and the rigidity and subsequent relaxation of the muscles during anæsthesia are amply accounted for on the view presented in this paper.

7. This theory is not an extension of the inhibitory hypothesis of recent physiology.

8. Ample proof is produced that "irritation" and "inflammation" are not attended by excitation of nervous activity, but the reverse; also that what is called "morbid" nerve-force, as something different from proper nerve-function, does not exist.

9. Even the voluntary muscles pass into a state of spasm or contraction under conditions which may properly be regarded as attended by a deprivation of nerve-force, oftener, perhaps, than is generally supposed, as in cases depending on "irritation," which is a paretic condition rather than one of exalted nervous activity.

10. It is not necessary to his thesis that he hold or prove rigor mortis to be a condition of muscular contraction. But this state has not yet been otherwise satisfactorily explained, the myosin hypothesis proving unsatisfactory in that respect.

SECTION ON OPHTHALMOLOGY.

SECOND DAY—AFTERNOON SESSION.

The first paper read was by Dr. A. Mooren, of Düsseldorf, Germany, on

THE SIMPLEST METHOD OF CATARACT-EXTRACTION.

He had had an experience of 5,019 extractions since the beginning of his ophthalmological practice in 1855. He had not invented any new instrument. With the progress of antisepsis and anæsthesia, there was less need than formerly of dexterity of manipulation. He regarded cleanliness and disinfection as clearly identical. He avoided the use of carbolic acid on account of its irritant effect. Preparatory to the operation, he washes the whole face of the patient,

then instils a few drops of cocaine. Immediately before operating, he washes the everted eyelids with a three per centum solution of boracic acid. The operation may be done without a speculum. The only instruments necessary are a Graefe knife, and simple forceps to fix the eyeball. The cut is made downward, and the same knife is used to lacerate the capsule through the intact pupil. Fixation should be abandoned when the patient is restless. Deliver the lens by gentle stroking, then remove the speculum, and rub the closed eyelids over the cornea, and wash again with the same solution of boracic acid. Then a light compress is put on, and retained by means of a strip of adhesive plaster, passing from temple to temple. The plaster should not be allowed to remain longer than four days, on account of its irritant effect upon the skin. In high degrees of atheroma it is better to do an iridectomy, as there may be a resulting leucoma. In such cases Dr. Mooren does the combined operation, making the iridectomy upward. In another form of corneal extraction he uses a lance-shaped knife to make the incision and open the capsule. Here he fixes the eye at the lower margin of the cornea. The iris seldom protrudes, and if it does, cut it off. In this form of extraction, if traumatic cases be eliminated, there is scarcely any bad result. He spoke of modifications in procedure, where the cataract has a hard, large nucleus, and of the necessity for an iridectomy where a foreign body was in the lens, to guard against its being brushed off by the iris during extraction and left in the eye.

Förster's method of ripening cataracts for a few years back has been practiced by Dr. Mooren. It consists in puncture of the anterior chamber and sufficient rubbing of the cornea through the closed eyelid. The introduction of instruments into the eye is not necessary. These cases, when complicated with choroiditis, require to be treated with great caution. One case required a year to mature, and a second had an extraction of a half clear lens fifteen months after the puncture, while a third failed entirely to ripen. The after-treatment is complete physical and intellectual rest.

In cases complicated with constitutional diseases, of course, general appropriate treatment is necessary.

Dr. Galezowski, of Paris, France, prefers extraction through a dilated pupil without iridectomy by corneal section. He makes a sclero-corneal puncture and counter-puncture, bringing out the knife so as to form an ellipsoid incision. With the same knife he makes a vertical incision in the capsule from top to bottom. Pressure below without the blepharostat extrudes the lens.

The incision is made in the upper half of the cornea. The accidents are (1) hernia of iris after operation; (2) suppuration of the cornea; (3) iritis; (4) secondary cataract. To prevent hernia iridis do not bring the incision too far out toward the sclero-corneal margin. Then do not open the eye too frequently. If opened every day after operation it makes the patient contract the lids and press out the iris. Do not open the eye for perhaps five or six days; only remove dressing to note swelling and condition.

To meet the second indication a disk of anti-septic gelatine is introduced into the eye under the eyelids, the lids closed over it, and left so. These disks are permeated with sublimate and cocaine. In three hundred cases, only two have had suppuration.

For the astigmatism existing after cataract-extraction he accounts in this way: In almost all eyes astigmatism exists both in cornea and lens, that of the lens correcting or neutralizing the corneal aberration. When the lens is removed this correcting element is lost, so that astigmatism is found where it did not appear before operation. If the capsule is hard or tough it is seized with a pair of forceps, drawn within reach and cut off with scissors.

Professor N. Monolescu, of Bucharest, read a paper on

CATARACT-EXTRACTION WITHOUT, AS COMPARED WITH EXTRACTION WITH, IRIDECTOMY.

In his simple operations he had trouble from prolapse of iris and other complications due to the difficulty of cleaning out the chamber, and he believes the combined operation to be the more reliable, as it lowers the danger from retained matters and iritic complications. He uses corrosive sublimate as a wash, the toothed forceps for removing the anterior capsule, and closes the wound with a rubber spatula. The eye is dressed with a firm close bandage, and he changes it early.

Dr. E. Landolt, of Paris, France, remarked that there never will come a time when only one operation will be the best for all cases of cataract. He himself was greatly in favor of the combined operation, and thought it was better rather to seek a fair degree of useful vision than a symmetrical pupil.

Dr. Abadie, of Paris, France, finds that extraction without iridectomy may sometimes complicate the reparative process, and it may be difficult to remove cortical substance. He reserves the operation for cases that are healthy, fully ripe, and which promise ease of extraction and good recovery.

Dr. Marmion, of Washington, D.C., said that his

faith in iridectomy in cataract-extraction had not been shaken by the arguments that had been advanced.

Mr. H. Power, of London, England, acknowledged himself a convert to the operation without iridectomy. Three years ago he had thought he should never change his opinion or method. But cocaine had rendered accidents less likely and given the patients more confidence. He made his incision nearer the sclero-corneal junction than Dr. Galezowski, but agreed with him that the less the eye is looked at the better. A very light compress is to be applied over the eye after operation. If suppuration occur, attend to the general health. In regard to iritis, he did not think that iridectomy was any protection against it. In regard to secondary cataract, he had it occur just as many times without as with iridectomy. If prolapse of iris occurs during the operation, cut it off.

Professor D. S. Reynolds, of Louisville, Kentucky, thought that in cocaine and without general anæsthesia we had eliminated the chief sources of failure in cataract-extractions. In carefully selected cases simple extraction might be preferable. In such cases he uses Graefe's knife, and allows the aqueous humor to escape before completing the section, which he makes as nearly as possible in the plane of the anterior face of the iris. In the combined operation he uses Beer's knife. He attaches importance to the way in which the capsule is divided. He makes a flap opening upward, and it frequently tears in other directions. As to eserine after extractions, if the pupil remains large, use it; if small, do not. He never uses fixation-forceps, but steadies the eye with his fingers. He has no use for an assistant in a cataract-extraction. The dressing is a minute film of absorbent cotton, held in place by a strip of adhesive plaster from lower lid to brow, about an inch wide and one inch and a half long, and renewed daily.

Professor P. D. Keyser, of Philadelphia, Pennsylvania, objected to one operation for all classes of cases. Before the introduction of cocaine he made the downward section; now he makes the cut upward. He tries to remove a piece of the capsule. He never operates without examining the urine for albumen. If there is albumen he looks out for iritis. He uses a solution of boracic acid, as sublimate seems to irritate the eye.

Dr. J. L. Thompson, of Indianapolis, Indiana, found that malaria complicates and might cause iritis after extractions.

Dr. Baker, of Cleveland, Ohio, concluded that he could not do without an iridectomy. He follows Mr. Wolf's (of Scotland) suggestion, and makes a small iridectomy, leaving a small pupil,

delivers the lens slowly and avoids touching the cornea, saving the patient pain after the operation.

Dr. E. Landolt prefers to make a large iridectomy if he has a large corneal section, and excise as much iris as he can. A small iridectomy is more dangerous than a large one, which allows one to control the field of operation better. He had not had any irritating effect from sublimate solutions in his cases.

Professor S. M. Burnett, of Washington, D. C., has extracted twenty to twenty-five cases without iridectomy, one of black cataract. He thinks there is no form of cataract that cannot be operated on by this method, and there are no more complications than where iridectomy is made. The removal of cortical substance is more difficult without than with iridectomy. He washes out the cortex.

Professor E. Smith, of Detroit, Michigan, thought there was no certain operation that could be laid down for all cases. He found that it was not always convenient to do a preliminary iridectomy some weeks ahead, as the patients objected to more than one operation.

Dr. Beaver, of Reading, Pennsylvania, asked whether the simple extraction was applicable in weak and flabby corneæ that fell down in wrinkles when the section was made.

Dr. Valk, of New York, N. Y., has had made an instrument which combines both methods to some extent. He makes a section, then introduces his retracting forceps, which he exhibited, and tucks the iris back out of the way, delivering the lens over the arms of the forceps. The iris is then allowed to fall back to its place, no violence being done it, and giving a perfectly round pupil with no iritis.

The president, Professor Chisholm, wished that more had been said on the subject of the introduction of antiseptic fluids and eserine into the eye. He submerges the eye in sublimate solution, or one of biniodide of mercury, makes an iridectomy not as large as the corneal section, and simply closes the eyelids and fastens them together with a strip of diaphanous adhesive plaster clear enough to count the eyelashes through, and if no discharge appears leaves it undisturbed.

Dr. Galezowski, in closing, said that he recognized the two classes of cases, in one of which the simple operation was all that was necessary, while in the other the combined operation was the better adapted.

Mr. H. Power said in regard to antisepsis that he always uses a knife, and a sharp one, rarely using the same knife for an extraction more than

once. He believes the introduction of fluids into the anterior chamber might be dangerous, and he has not seen benefit from the instillation of eserine.

SECTION ON OTOTOLOGY.

SECOND DAY—AFTERNOON SESSION.

A paper was read by Professor T. E. Murrell, of Little Rock, Arkansas, on the

PECULIARITIES IN STRUCTURE AND DISEASES OF THE EAR OF THE NEGRO.

By negro was meant the typical African, and not the mixed races. The negro has fewer aural affections than the white man, and for this reason deafness is much less common in this race. His immunity from aural diseases is due to other than accidental causes alone. Peculiarities in anatomy are met with sufficiently striking to explain some of his exemptions. The following peculiarities in the anatomy of the ear and adnexa are more or less conspicuous: The pinna is small, with lack of development above the concha, and is set closely to the side of the head. The external auditory canal is large, quite straight, and of less average depth than the standard. The membrana tympani is large in its diameters, and forms a less oblique angle with the axis of the canal than that usually given. The mastoid process is very slightly developed, and inconspicuous. The pharynx is large and capacious, with great breadth between the fauces. The nares are broad and flared, giving immense breadth to the choanæ. Deflection of the septum is seldom an obstruction to nasal respiration. Diseases of the external auditory canal are mostly accidental and traumatic. Impacted cerumen is less common than in the white races. Otitis parasitica is rare. Otitis media suppurativa acuta is rather frequent in children, but less so than in whites. Rhinitis purulenta is common in strumous children, and in these the suppuration in the middle ear mostly occurs. Recovery generally takes place with little loss to hearing. Otitis media suppurativa chronica is still less common. Mastoiditis is extremely rare. Otitis media catarrhalis chronica is very infrequent.

Deaf-mutism is of much smaller percentage than in the white races. Among the accidental causes of aural affections may be mentioned: The southern negro lives in open houses, and is therefore less liable to head colds than otherwise. His colds are mostly pectoral.

DISCUSSION.

The paper gave rise to discussion, and as the subject was a new one, to diversity of opinion.

Dr. C. M. Hobby, Iowa City, Iowa, thinks the excellent paper of Professor Murrell suggests the

necessity of more thorough investigation into the influence of race upon the production of disease. The census reports show fifty cases of mutism among colored people to sixty-six cases among white people. Is this difference due to race influence, or to the neglect or inability of the negro to receive observation and attention? The only reports in reference to causation of mutism among the negroes, show a nearly equal proportion of mutism from cerebro-spinal fever with the white race, and the same is true of all kinds of alleged causes. Professor Murrell's objection to including under the term "colored" all possessing acknowledged African blood, is undoubtedly good, but even his extensive experience among the so-called "colored" people cannot have brought to his attention any very great number of those of uncontaminated African blood.

Dr. R. Tilley, Chicago, Illinois: I wish to express my high appreciation of the paper which has just been read, and I am sorry the author is not present to receive my compliments. The subject is so completely new to us who practice in the North, that it is necessarily difficult to speak upon it. The subject is, however, peculiarly interesting to me, in connection with the relative susceptibility of the negro to the ravages of syphilis. I refer to this subject in a paper, which I hope to have the honor of presenting to the section. The statistics presented to us are exceedingly interesting, but require further corroboration, and it would be important, if we could bring any influence to bear upon the officers of the next census, to render its reports more exact on this question. The writer's theoretical explanation of the absence of impacted cerumen among the negroes, because of the large size of the external meatus, scarcely corresponds with my observation. For, although I have had very little experience with the negro, yet there is a marked difference in the size of individual canals, and it has been my observation that large canals are more associated with impacted cerumen than the smaller ones.

Dr. L. Turnbull, of Philadelphia, Pennsylvania, remarked that, if he understood the paper, no mention had been made of fibrous tumors of the lobe of the ear in the negro. In his manual *Diseases of the Ear*, published in 1872, he had made special mention of the great tendency of the negro to this form of disease. He had seen several cases among negro girls of one, two and in one instance three such tumors, which he removed by operation. In his clinic, he has, every year, several cases in the negro and mixed races, of acute otitis media; by negro he meant, not a brown or yellow, but a *black* man.

Dr. S. O. Richey, Washington, D.C. Among charity patients of this country are to be found many Irish. Those of them over forty years of age who have ear troubles, commonly have very large meati; often impacted cerumen, and persistently impaired hearing, associated together. No one of these symptoms is the cause of any other, but we have to look to a more central common cause in the nervous system. The torpid mental and nervous organization of the negro stands in strong contrast to his exaggerated emotional nature, the offspring of his ignorance and superstition. But, in this torpor of his nervous system, we may find some explanation of his comparative freedom from progressive deafness. Keloid of the lobe of the ear is not uncommon in the negro race.

Professor G. E. Frothingham, Ann Arbor, Michigan, said that, though Professor Murrell's paper had already been quite thoroughly and ably discussed, he wished to call attention to the statements it contained, that were important in connection with the report made yesterday by Dr. Bishop, of Chicago. He desired to do so, because they tend to support the theory which he advocated in the discussion of Dr. Bishop's paper. Professor Murrell declares that middle-ear inflammations seldom occur among the colored people, and that they nearly all live in dwellings thoroughly ventilated, not from architectural design but from incomplete construction. They were thus freed from exposure to contaminated atmosphere, which has a tendency, through the germs which it contains, to produce naso-pharyngeal catarrhs and acute and chronic inflammations of the middle ear, especially when the changes of temperature are sudden and extreme. The conditions under which the population lives, from which Dr. Bishop had gathered his statistics, and, so far as inflammatory diseases of the naso-pharyngeal and tympanic cavities are concerned, the results are just the reverse; Dr. Bishop finding these inflammations prevailing to a great extent; Professor Murrell finding them very infrequent. Professor Frothingham believes the infrequency of impacted cerumen can best be explained by the absence of chronic aural catarrh. He has found this to exist in a large proportion of the cases of impacted cerumen, to such an extent as to impair the hearing seriously, often leading to progressive deafness. In many of these cases, the ceruminous glands are stimulated, and, as in many other cases of over stimulation of glands, we get an excessive and pathological secretion. This, with the desquamated epithelium, from the same cause, also in excess, leads to impaction. He is more inclined to this view than the one offered by Dr. Richey.

Dr. H. B. Young, Burlington, Iowa, agrees with Dr. Tilley in the idea, that large straight canals do not, *per se*, tend to prevent accumulations of cerumen. Experience shows the large and straight canals quite commonly affected in this way. It has also been noticed that in some cases there appears to be an hereditary tendency. If parents have it, adult sons and daughters may expect it.

Professor John F. Fulton, of St. Paul, Minnesota, followed with a paper on

PRIMARY INFLAMMATORY DISEASE OF THE MASTOID ANTRUM.

Primary disease of the mastoid cells and antrum is sufficiently common to merit much careful study and classification. Although much of the disease that attacks this region is secondary to inflammation extending from the tympanic cavity or external canal, there can be no doubt that the reverse of this is also true. Acute primary inflammation, either suppurative or non-suppurative, of the pneumatic spaces is extremely difficult to diagnose. The symptoms are obscure and are often referred to parts remote from the seat of disease, therefore a careful clinical history is most important.

The author has known this trouble to be diagnosed as neuralgia, and the patients allowed to suffer for weeks and months, until the trouble has been developed and relieved by spontaneous opening of the cavity's wall. Some of the suppurative cases result in a sub-periosteal abscess behind the auricle. In the present state of our knowledge a positive diagnosis of primary disease of the mastoid cells cannot always be made, as neither the symptoms nor etiology have been sufficiently studied. Pain is the symptom most relied on, but this is sometimes very deceptive, as it frequently is referred to regions of the skull quite distant from the seat of the trouble; it is, however, apt to be constant, "stinging," throbbing, and tearing. The patient gets no rest, the discomfort being much increased at night. A diagnosis is best arrived at by a process of exclusion.

There is no trouble with any other portion of the ear; no dullness of hearing, no tinnitus. The diagnosis is rendered almost certain if a swelling develops itself behind the ear *late* in the attack. Disease of the mastoid cells runs rather a slow course. Those of strumous or syphilitic origin are very slow. As soon as the diagnosis is made the mastoid should be opened, when relief will be almost instantaneous.

Professor E. DeRossi, Rome, Italy, said that pain cannot be regarded as a pathognomonic symptom of primary inflammation of the mastoid.

He said that on that one symptom alone he would never decide to perform an operation such as trephining the mastoid process. He spoke of a case of primary epithelioma of the mastoid, of which the principal symptom was pain. Tuberculosis of the temporal bone is also accompanied by persistent pain.

Dr. J. Baratoux, of Paris, France, said: I believe that the mere symptom "pain" is insufficient to allow the giving of the diagnosis of inflammation of the mastoid apophysis. I would not be guided by this mere symptom to decide upon so serious a surgical operation as trephining of the mastoid apophysis, inasmuch as it is extremely rare that we do not meet some other symptom than that of pain. There exist, in fact, in these cases other signs of the middle-ear disease which attract the practitioner's attention.

Dr. S. O. Richey, Washington, D. C., believes pain alone, or even in case of chronic suppuration of the middle ear, is an insufficient indication for perforation of the mastoid process, in all cases. He gave a brief history of a case of chronic suppuration, of eighteen years' duration, in which there was absence of the drum-membrane, and of the ossicula, except the stapes. There was also persistent pain, extending from the mastoid region of that side, over the occiput to the vertex. The patient twice in two months fell, unconscious, the fall each time being followed by an escape of dark, fetid pus from the ear. He recovered with a cicatricial drum-membrane, without trephination. Such cases make a surgeon doubtful when he should trephine.

Dr. H. B. Young, Burlington, Iowa, said, concerning the unreliability of pain alone, as an indication for perforating the mastoid, his experience with at least one case will encourage conservatism. This case had the characteristic mastoid pain, without external signs of inflammation. Perforation was suggested, and Knapp's position explained. It was acceded to, but before it was done the mouth was examined, and carious teeth found. The perforation was postponed, the teeth were extracted, and eventually, though slowly, the pain subsided.

Professor G. E. Frothingham, of Ann Arbor, Michigan, then read a paper entitled

THE INDICATIONS FOR THE ARTIFICIAL PERFORATION OF THE MASTOID PROCESS, AND THE BEST METHOD OF PERFORMING THE OPERATION.

From its tendency to involve the brain and thus endanger or destroy life, inflammation of the tympano-mastoid cavity is, perhaps, the most important of aural affections, and one that, in spite of the progress which has been made in otology

within the last twenty years, has many mooted points that must be settled before we can diagnose them with sufficient accuracy, or lay down positive rules for treatment. Among these questions, "What are the indications for the artificial perforation of the mastoid process?" and "What is the best method of performing the operation?" are, perhaps, the most practical. They stare not only the specialist, but the general practitioner, in the face, and upon their correct answers the life of the patient will often depend. It is true we have much more precise knowledge on these subjects than we had even a dozen years ago, but our knowledge is still so vague, and our rules for action still so indefinite, that the most accomplished aurist will often be undecided how to act. He may regret, perhaps, after the autopsy that he did not perforate as thereby he might have saved his patient. On the other hand, he may regret that he did, or that he did not operate by a different method. To a certain extent this uncertainty is due to the inherent difficulties of the subject, and will, perhaps, always exist; but to a large extent it will probably be removed by accumulated experience and wisdom, and further records of cases are desirable as contributing to this result. Some of this vagueness may be eliminated, I believe, by a more extended discussion and analysis of facts already recorded, and it is in this hope that I present this paper for the consideration of the section.

A brief consideration of the anatomy of the mastoid, and its more important anatomical relations, and also some of its more important abnormalities in form or structure, or in the relation of those surrounding parts that affect operative procedure, will be essential to the discussion of the more practical questions found as the heading.

The internal surface of the mastoid bone is smooth, and presents as one of its prominent features, a deep curved groove, known as the sigmoid fossa, in which is lodged a portion of the lateral sinus. In this fossa is generally found an opening for the vein transmitted to the lateral sinus through the mastoid foramen. The situation of the sigmoid fossa with reference to the mastoid process, and posterior wall of the external *meatus auditorius* is of great importance, and, until recent years its variations were undetermined and little regarded. According to Hartmann's measurements, which agree with those of Bezold and others, the distance between the posterior wall of the meatus and the sigmoid fossa is often only a few millimeters. A sharp forward curve of the transverse sinus toward the wall of the auditory canal is very common. In one hundred temporal bones measured by Hart-

mann it was but five millimeters in one case. In five cases it was only six millimeters. In six cases it was only seven millimeters, while in forty-one of the cases it was one centimeter or less. The maximum was nineteen millimeters, while the average was only eleven and a half millimeters. In the operation of opening the mastoid process the danger of wounding the transverse sinus will be greater in proportion as this distance is smaller, and as no operator can tell when he may chance upon one of these cases, he should avoid those methods of operating which do not allow of ready inspection of the wound as he proceeds.

The floor of the middle cranial fossa has an important relation with the superior mastoid cells that must be constantly borne in mind while opening into them. The floor of this fossa lies but a little above the external auditory canal, being separated from it by only a thin lamella of bone. The course of the facial nerve in the *canalis facialis* turns sharply backward on reaching the inner wall of the tympanum, and, in its course from above the oval window downward and backward to the stylo-mastoid foramen, it lies quite near the upper and deeper mastoid cells, and is in danger if these are perforated carelessly or too deeply. It may be reached in some cases at a depth of five-eighths of an inch. In penetrating with a drill some observe the rule to go no deeper than this. In using the chisel, as the wound is open for inspection, this structure may be avoided. The posterior and horizontal semicircular canals have also such relations to the mastoid cells, that in penetrating with the drill at a depth of more than five-eighths of an inch they are liable to be encountered, especially if the drill is directed too far forward. In operating with the chisel they may be more surely avoided. The occipital artery is lodged in a deep groove at the lower and inner side of the process. The apex of the process serves for the attachment of the sterno-mastoid, splenius capitis, and trachelo-mastoid muscles. The digastric muscle is inserted into a deep fossa, situated on the inner and posterior surface. A mastoid abscess occasionally makes an opening for itself at this fossa, where the outer wall is often thin, or at the apex of the process, and burrows under these muscles deep into the neck. I have met with two such cases in my practice.

The size of the whole process varies much in different individuals, generally being larger in those who are strong and muscular, and in males than in females. The number and size of the mastoid cells vary greatly in different individuals, and even in the same individual on the two

sides. They are separated from each other by thin perforated walls of bone, and generally communicate quite freely with each other and through the *antrum* with the tympanic cavity. In some cases a single large space is found in the center of the bone and the cells exist in the form of *diploe* in the walls of this central space. In the child, the wall separating this cavity or central space from the lateral sinus is quite thick relatively to the outer wall, and hence meningitis or cerebral abscess as a result of inflammation of the mastoid is comparatively rare. The outer wall is, also, so thin, in childhood, that it is often penetrated with the knife on making Wilde's incision, and is easily opened with a blunt probe or gouge, in cases requiring it.

Although it is now twenty-six years since the operation of perforating the mastoid process was revived and established as a necessary operation under certain circumstances, the indications which call for the operation are still imperfectly formulated, and even the evidences of retained pus are so imperfectly understood that the most experienced operators have frequently been mistaken in their diagnosis, and disappointed by finding no pus where they had confidently expected and thoroughly sought for it. It is hardly sufficient consolation under such circumstances to find, as often happens as an outcome, that the operation has done good by the influence of the traumatism upon the diseased bone, but until very many more cases are reported and studied such disappointments will continue frequent, and the operators will be obliged to explain the mistakes, and justify the operations as best they can. Indeed, the probabilities are that a considerable element of uncertainty will always exist as to the presence or absence of pus, or as to the exact condition of the interior of the bone, even though the indication is plain for perforation.

There are many cases, however, in which little doubt need exist. In these cases there is severe pain in the mastoid, increased perhaps at night, and shooting in every direction, and accompanied by tenderness and swelling over the bone, with elevation and forward displacement of the auricle. The patient has a weak and rapid pulse, and anxious, haggard countenance, dry and coated tongue, and is unable to sleep or take sufficient food. There is a failure of mental and muscular power, irregular chills and fever, while every effort at moving, especially every jar, causes increased pain in the region of the mastoid. Such symptoms point most positively to the nature of the affection and constitute a positive and urgent indication for immediate perforation. Yet such cases, not a generation ago, were generally mis-

understood, disregarded, or vaguely diagnosed as cerebral disease.

In all cases in which acute pain arises deep in the mastoid during the course of suppurative inflammation of the middle ear, and is accompanied by tenderness and swelling over the bone, and leeches and other measures calculated to relieve periosteal inflammation afford no relief, or relief for but a few hours, and on making Wilde's incision a normal or nearly normal condition of the periosteum is found, the external table of the mastoid should be opened, and the opening should not be delayed, but made at once. Even in cases where by reason of the early swelling and tenderness of the soft tissues covering the process, and superficial character of the pain, it seems probable that the disease is mastoid peritonitis, if Wilde's incision shows not only change in the periosteum, but the bone to be also changed in appearance, then the operation should be extended and the cells opened into, as the change in the bone may be, and most likely is, due to disease in the mastoid cells instead of the periosteal inflammation, the disease beginning in the bone and extending to the periosteum and other tissues over the process.

With acute symptoms, early operation cannot be too strongly insisted upon, for the danger of delay is great in all cases where pus is contained in the mastoid cells. To operate early is only to follow a general principle that acute abscesses should be opened early, and, considering the close proximity of mastoid abscess to the brain, this rule becomes all the more imperative, especially when we consider the slight danger of an operation and little prospect of spontaneous cure. According to Dr. A. H. Buck's analysis of sixty-seven cases, more than half of which occurred in persons under twenty-five years of age, and two of which occurred in children ten years of age and under, only three made a spontaneous recovery, and all of these were under the age of sixteen years. When we consider that Schwartze attributes but two per centum of the deaths occurring after operation to the operation itself, and that seventy per centum of the cases were cured, and only twenty per centum died from the disease when operated upon, including those operated on at a late period in the course of the disease, we shall see that conservatism here is an element of danger, and, that when in doubt, it is best to operate. From cases that have come under my observation I should say that it is a general custom to delay operation too long, or to omit it altogether even in cases where it is evidently called for. There is, up to the present time, too much reluctance, even among aurists,

to resort to this operation, and it is only eight years since one of our most progressive and justly celebrated otologists, in an extended article on "Acute Purulent Inflammation of the Middle Ear," said: "*Opening of the mastoid process*" was never resorted to in the series of cases under consideration. Of this operation also, I am not a great admirer, and perform it only when the cerebral symptoms are threatening, especially when, at the same time, the secretion has ceased more or less suddenly, the mastoid region red, swollen and tender on pressure, *i.e.*, in cases that show some probability of retention of morbid substances in the cells of the mastoid process."

Schwartz declares that if the skin covering the upper and posterior wall of the external meatus is bulging, and there is retention of fetid pus in the middle ear, with pain in the region, and general fever, the mastoid may often require perforation, even though the external surface is sound and gives no evidence of disease in the cells. In many of these cases the indications cannot be clearly made out, and a considerable degree of uncertainty must exist as to the necessity, or even propriety, of an operation.

When, in the course of a suppurative of the middle ear the temperature rises rapidly, and continues in spite of antipyretic measures, even though there is no marked pain or tenderness in the region of the mastoid, it is warrantable to perforate the mastoid, as there is reason to suspect pus, and pus has several times been found on perforation with this as the only indication for making the operation. In such cases it will always be doubtful whether or not pus is pent up in the mastoid cells, as the symptom of increased fever and general headache may be due either to retained pus, sinus-thrombosis, or brain abscess. I believe the opening should be made, however, as in some cases it may evacuate pus, prevent extension to the brain, and save life. If it should be brain abscess in the vicinity of the affected ear the opening may subsequently be enlarged and allow of evacuation of the abscess. This was done in one case by Truelsen, and the life of the patient saved. Even if it is sinus-thrombosis, the suggestion of Zaufal to expose the sinus, ligate it, lay it open and remove the thrombus, is worthy of consideration.

As to the methods of perforating the mastoid process, they have been quite various. When Joseph Toynbee wrote his classical work in 1860, speaking of disease of the mastoid process, he said: "Perforation of the mastoid process also suggests itself, and this operation may doubtless be performed in those cases where the matter is

pent up in the cavity of the ear and is causing such urgent and serious symptoms as are likely, if not relieved, to terminate in death. I have never performed this operation, but I should not scruple to do so in a case where the life of the patient was threatened. Considering the large extent of the mastoid cells, it appears to me that the best plan of operating would be to use a trephine over the middle and posterior part of the process and to remove a portion of bone three-quarters of an inch in diameter." At the present time the trephine is probably never used in this operation, but a small trephine about one-fourth of an inch in diameter, was for sometime commonly used in perforating this process. The directions given for the use of the trephine were altogether too indefinite considering the important relations of the part. When Wilde recommended his incision in his book, published in 1853, he did not specify very exactly where it should be situated. If we take his practice as a guide, it should be situated about half an inch back of the attachment of the auricle, a position at first commonly selected in making the primary incision for perforating the mastoid, as will be seen by reference to reported cases.

When Dr. Roosa wrote his extensive and valuable work on "Diseases of the Ear," in 1873, after consulting all the best authorities on the subject, he could give no more definite guide for the use of the trephine in opening the mastoid process, than to direct an incision after the manner of Wilde, parallel with the attachment of the auricle, and that after the periosteum had been dissected up, "the trephine should be worked inward, forward, and upward." He says: "There can be no positive directions given as to the depth to which the instrument should go." The operation should go on very slowly, frequent pauses being made to see how far the instrument has gone. It is impossible to say in a given case at what depth we shall reach the cells or free spaces, and thus make an outlet for the pus. Dr. Agnew was obliged to go five-eighths of an inch in one of his cases and then only found sclerosed bone. Dr. D. C. Ambrose, removed a piece one inch long from the mastoid process of a young woman of twenty-one years of age. The cell structure will ordinarily be found at a depth of from one-sixth to one-fourth of an inch."

We can hardly wonder that with such directions there was a hesitancy on the part of physicians to attempt this operation.

The employment of drills soon succeeded the use of the trephine in opening the mastoid cells. Those known as Buck's drills, because recommended by him, were most used, and are gener-

ally recommended even in the latest text-books by American authors. These drills are entered usually about a quarter of an inch behind the external auditory meatus, and a little below the level with the upper wall of the canal, and by pressure and a rotatory motion, caused to penetrate the bone in a direction upward, forward and inward.

The opening thus made is usually enlarged by the use of a bit, conical in form, which grinds through the external surface, enlarging the opening, it is true, but by bruising the bone and leaving a ragged surface, which is incapable of perfect cleansing and liable to lead to absorption of poison and consequent constitutional disturbance. Owing to the pressure that must be exercised in order to penetrate solid bone with reasonable quickness, the drill may be driven suddenly inward as the cell structure is reached and resistance ceases, and do fatal injury to the lateral sinus or membranes of the brain. No ordinary precaution, such as stop arrangements, extension of a finger by the side of the drill while at work, etc., etc., which are usually adopted in operating, will wholly guard against this, and in the excitement of an operation these precautions are sometime wholly forgotten. Arthur Hartmann tells us that when he operated on the cadaver with these drills after the manner recommended by Buck, who sets the drill a little below the upper border of the external canal and penetrates inward and a little upward and forward, he penetrated the middle cranial fossa with the drill in three cases out of one hundred. If this happened in operating upon the cadaver, with nothing to disturb the operator, how much more frequently might it happen to an operator disturbed by the responsibility of an operation upon a patient who is, perhaps, acting badly under an anæsthetic, and where in seeking pus he often penetrates to the greatest depth sanctioned by the authorities? When we consider, also, the variable position of the lateral sinus, as determined by Hartmann and others, we shall not wonder that Schwartz characterizes this mode of operating as a "drill into the darkness."

The use of a dental engine to drive the drill, by its rapid rotation allows the operator to penetrate the bone with very slight pressure and to determine when the cell structure or a pus cavity is reached without so much danger of a sudden plunge of the drill as when using ordinary hand drills, but it is still a "drill into the darkness," and the opening made needs further enlargement, which is usually made by a burr which bruises the bone and leads to dangers already mentioned. It may be said that the sharp gouge or chisel

may be used to enlarge the opening instead of the burr, but in that case there is no need of a previous use of the drill, attended, as it is, with these dangers.

We are told by Von Troltsch that the first operation of this kind ever made was performed by Jean Louis Petit by means of a gouge and hammer. In modern times we have not only seen the operation itself firmly established, but Professor Schwartz has also plainly demonstrated that the method employed by the great French surgeon is the best and safest that has ever been devised.

The chisel should be applied on a level with the upper wall of the meatus, at first at an angle of about 45° , and the bone chipped off in thin layers as close to the posterior wall of the meatus as possible, and extending downward well toward the apex of the process. In working the chisel either pressure by the hand, or light blows from a small wooden hammer may be used. Five-eighths of an inch is the limit as to depth according to many authors, and beyond that we are in danger of injuring the facial nerve, semi-circular canals, or other important structures. Antiseptic precautions should be observed both during the operation and the after treatment. The opening should be kept patent by means of a small silver or rubber drainage tube, and the most careful attention bestowed in every respect, as the after-treatment often requires the exercise of even more knowledge and skill than the operation itself.

Even in the cases where it is regarded as applicable, the drill leaves too small an opening, very liable to close early by granulations or cheesy pus, and thus lead to a recurrence of the symptoms, or necessitate another operation to remove the obstructions. The opening made by the drill, even when made by skillful operators may, from its necessarily limited extent, fail to reach the pus, and patients so operated upon have died with symptoms that caused the operator to think that pus existed at the time the operation was made, but was retained in a portion of the process not penetrated. In chiseling, we generally lay open more of the cells, and if we wish, can lay them open extensively, while with the drill we open into the antrum, or but few cells at most. The other cells may not freely communicate with the cells opened into by the drill, and thus retention of pus is more likely to occur than after the extensive opening of the cells and thinning of the external table of the mastoid that results in the perforation with the chisel.

Another objection of great importance is the nature of the wound made by the drill. The blood-vessels and lymphatics of the bone are

bruised and injured in such a way that it becomes difficult to cleanse their extremities from septic material, which is more likely to be absorbed and lead to severe constitutional symptoms, than when the wound is made with a sharp, cutting instrument, leaving a smooth surface which is easily cleansed and kept free from poisonous germs.

The method of opening the mastoid process by the chisel is adapted to all classes of cases. It is easier of execution than perforation with the drill, and according to my experience does not require, for its execution, "more time and more manual skill," as stated by Dr. Buck.

I believe the superiority of Schwartz's method is sufficiently well established, and its advantages are of so great importance that it should be generally urged for adoption until some still more improved method may be devised.

Professor E. De Rossi, Rome, Italy, asks if Professor Frothingham has ever practiced opening of the mastoid process in chronic suppurative inflammation of the middle ear. It should be noted that Professor Frothingham is among the first to give so specific directions about the method of opening into the mastoid cells.

Notwithstanding the high authority for it, he has not been accustomed to perform the operation in cases of simple chronic suppurative inflammation.

Dr. J. Baratoux, Paris, France, said: I fully agree with the opinion expressed by Professor De Rossi, relative to surgical interference in affections of the mastoid process. I believe that we are too often tempted to perforate this process for affections which can be efficiently relieved by other means.

In actual practice I rarely have to resort to this operation. I almost always resort to other means such as early ice applications, or Wilde's incision; even in those cases which exhibited fever, delirium and pain. I have often made Wilde's incision when I have felt sure that I should find no pus beneath the periosteum, but experience has convinced me that such an incision often suffices if the precaution is taken to give a free exit to the excretions from the external auditory canal. In many cases when, according to my observation, other surgeons would have opened the mastoid cells, I have succeeded in affording permanent relief by the use of insufflations, perforating or enlarging old perforations of the membrane, antiseptic dressing, and Wilde's incision. So far these simple measures have given me such satisfactory results that I do not hesitate to say that cases demanding perforation of the mastoid cells are rare. I say this, conscious of the fact that

many surgeons do not hesitate to perform the operation, even in comparatively insignificant affections of the middle ear.

My observations are based on an experience similar to that of my confrères, and I have never yet been obliged to perform perforation of the mastoid cells when, according to my judgment Wilde's incision and the other precautions I have referred to have been deemed at the time sufficient. I consider the necessary opening of the mastoid cells to be rare operations.

Dr. Bishop, Chicago, Illinois: We are much indebted to Professors Fulton and Frothingham for discussing a topic which has not received the attention which its importance merits. Professor Fulton treats not only of primary inflammation of the mastoid antrum proper, but of the mastoid cells, which constitute the whole interior structure of the mastoid process. Had he maintained that the mastoid antrum proper is the seat of a primary circumscribed inflammation, limited to that part only, my experience could not have corroborated his assertion, for I do not remember to have met with a case in which such a diagnosis would have been warranted. Indeed, I cannot think that primary inflammation of the mastoid cells is frequent, except as the result of traumatic injury. I have witnessed the occurrence of the latter, but am not satisfied that it occurs independently of traumatism, or middle-ear disease. I have frequently treated cases which might have been diagnosticated inflammation of the mastoid cells, but which I believe to have been periostitis, in which the inflammation was controlled by cantharidal collodion, or essential oil of mustard, or leeches, combined with anodynes. The pain, redness, swelling and tenderness have often entirely disappeared under this treatment without operative interference, but I have always found such cases either associated with, or following, inflammation of the tympanic cavity.

We should heartily thank Professor Frothingham, for his paper is a most valuable contribution to the history of mastoid disease and its treatment. To be brief, I will give only an outline of my treatment of such cases as require operative procedures. If the abortive measures mentioned fail to arrest the inflammation, and the formation of pus is inevitable, it is my practice to cut down at once upon the bone. If a sinus has formed, it is rimmed out with a drill, and sufficiently enlarged to admit of a thorough examination of the interior of the cavity. All unhealthy tissue is removed; the cavity is treated with scoop and drill, on much the same principle as the cavity of a tooth is prepared by a dentist for a filling; a solution of mercuric bichloride (1-2000) is used to

cleanse the cavity, and iodoform, or powdered boracic acid, is dusted into and about it. I, like the author of the last paper, use drainage tubes, but the cases in which its use has been omitted have been attended by as fully gratifying results. In closing the wound, the periosteum, which has been preserved is replaced; the sutures are frequent and deeply inserted, and the parts are sealed with antiseptic gauze, absorbent cotton, and net bandage.

My experience is not so extensive as that of some of the authorities quoted, but 85 per centum of my cases recovered completely; the other 15 per centum have passed from my observation before a fair opportunity for a cure, and are classed as doubtful.

I wish to express my dissatisfaction with the use of the trephine in operations on the mastoid where a sinus exists. The sinus does not afford a steady support to the fixation shaft, unless the opening in the bone is very small. If the sinus is large, the superficial layer of bone is likely to be undermined and softened to such a degree that it gives way under the trephine, letting the instrument settle into the cavity suddenly, jeopardizing the dura mater and the lateral sinus. I have never been so unfortunate as to have injured these structures, although I have removed sclerosed bone while the dura mater was exposed; but too much care cannot be exercised to protect these vital structures.

Dr. C. M. Hobby, Iowa City, Iowa, called attention to the hand bone-gauge of the ordinary general operating case, as possessing the requisites, when sharp, of perfect control, rapid work, and of making the best possible wound of bone.

Professor F. C. Hotz, Chicago, Illinois: In regard to the indications for early operation in acute suppurative inflammation of the middle ear, there is one point which cannot be emphasized strongly enough. Surgeons do not see any justification for operating in such cases, as long as the pus has a free outlet through the perforated membrana tympani. I have held and expressed, and I still hold the same views as Professor Frothingham, viz.: that, if judicious treatment continued for several weeks, has proved insufficient to control the suppuration, or, if any medicinal application, even of the mildest character, aggravates the symptoms, and the purulent discharge is very profuse, the mastoid should be opened, there being no doubt that the inflammation has extended beyond the tympanic cavity, and, though the pus has a free outlet though the drum-membrane, the amount of pus in the mastoid cavity is too great to be readily drained off through the perforated

drum-head. I have been, quite recently, again impressed with the importance of early operation, by a case of acute suppurative inflammation of the middle ear, which had existed over two months. I saw the case in consultation; there was no tenderness or swelling over the mastoid region; no pain in a distant part of the head; the membrana tympani showed a large central perforation, through which the pus kept welling out, as fast as it could be wiped off. All means had proved inefficient, the discharge being as copious as during the first week. My opinion was that the mastoid was undoubtedly involved, and should have been opened long before. The attending surgeon had not thought of doing so, nor that there was any special indication for the operation, because the discharge of pus was so free and uninterrupted, through the drum-head. The operation was not done, and a week later the patient died of acute meningitis.

Dr. G. W. Allyn, Pittsburgh, Pennsylvania, wished to know if the writer would include in his indications for opening the mastoid cells, cases of chronic suppuration of the middle ear which had, for years, resisted the usual means of treatment.

Dr. R. Tilley, Chicago, Illinois: When the statement is made, that suppuration of the middle ear demands operation, it is too general; we must distinguish between the kinds of suppuration. If the suppuration persist, regardless of special attention to cleanliness, and the use of antiseptic fluids, and the pus wells up in great abundance, and unquestionably arises from the mastoid region, then the operation may be justifiable. But when the suppuration is from the roof of the tympanic cavity, then the perforation of the mastoid cells would be of no avail, and it is just these cases, namely, a persistent discharge from the upper and anterior part of the middle ear, which has given me, personally, the greatest trouble.

Dr. S. O. Richey, Washington, D. C.: Trephination of the mastoid is like tracheotomy for diphtheria, unadvisable until the last moment, and yet we must be sure not to defer the operation until too late. The Scylla of a needless operation, and the Charybdis of not performing it, or of doing it too late, must both be avoided; and the way in which this is done depends greatly upon the judgment of the individual surgeon. The treachery of chronic suppuration is well known. Often there is no symptom of the approaching fatal termination, until too late for the operation. My mind is not clear as to the unquestioned indications for the operation, and these I would like to hear clearly set forth.

Dr. Blitz, Minneapolis, Minnesota: As far as my experience goes in mastoid disease, I am convinced that the operation could, very often, be avoided, if the disease could be recognized by the practitioner of general medicine, and appropriate treatment be at once instituted, as the family physician sees the patient first, and often treats the patient until the aggravated symptoms and increased suffering frighten both physician and patient into consulting some specialist, who finds the case so far advanced that nothing but perforating the mastoid process will save the patient. Often the patient neglects to attend to a suppurative otitis media; the disease becomes chronic, the tissues, more and more, break down, until exposure to cold, or this gradual extension of the disease affects the mastoid cells. In acute inflammation of the mastoid cells, I have found continued applications of broken ice, in a rubber bag, placed over the ear day and night, together with other remedies indicated by the symptoms, best. In regard to the indications for the operation, I fully agree with the author of the paper, and am glad these points are made so clear. As to the method of operating, I must beg leave to differ with the author. The use of the chisel and hammer seems barbarous, when we can use so nice and efficient an instrument as the drill,—not a small, ordinary one, of perhaps one-eighth inch in diameter,—but a round burr-head drill, of at least one-half inch in diameter; for if the operator has mechanical dexterity he will use the drill to far greater advantage, with more nicety and certainty, and without injury to the parts. If the opening needs to be increased, this can easily be done, and all the rough edges of the wound be made smooth and clean. With our present antiseptic precautions there is no more danger from sepsis after one operation than the other.

The operation is not so dangerous in itself as was formerly believed, and there is no reason to dread it so much, because it certainly cannot do so much harm as the disease, if the operation be delayed, or not done, as many such cases unfortunately might show.

Dr. H. B. Young, referring to Professor Hotz's remarks, said: It occurs to me that no mention was made of a *post-mortem* in your case. Professor Hotz replied that there was no *post-mortem*. Dr. Young then reported a fatal case, in which the mastoid was opened *post-mortem* and no pus was found, although it was, from concomitant circumstances, certainly to be expected.

Professor M. F. Coomes, Louisville, Kentucky, said he wished to enter a protest against the use of the chisel in opening the mastoid cells, as he

thought the method a rude one, to say the least, and one that ought not to be practiced when other methods are at command. He had opened the mastoid in two cases, in which pus was supposed to exist: in one the cells were healthy; in the other a small quantity of sanious fluid was found. One of the patients improved for a time, after the opening was made, was able to be on his feet for fifteen days, and finally died in convulsions. No *post-mortem* was permitted. The other patient died in a comatose condition a few days after trephining. The autopsy showed that the pus passed from the middle to the internal ear, thence through the bony wall into the cranial cavity. The auditory nerve in the canal was in a state of high inflammatory action.

Dr. Toeplitz, New York, N. Y., said in his practice opening of the mastoid has never been made without a distinct indication, *i. e.*, tenderness, pain, swelling, localized headaches, increased temperature, etc. Chronic suppurative otitis, with only a suspicion of pus in the mastoid cells, is not considered a sufficient indication. The operation was always performed with the chisel, which has proved satisfactory in every respect. Are we justified in performing the operation in cases where the brain and the meninges have been involved? I had occasion to make two observations as to this point:

(1) A patient had suffered from chronic suppurative otitis five years previously to the last affection. When I saw him first I diagnosed sinus thrombosis, and although I had for him no hopes, the operation was performed. The patient died four days after. The autopsy confirmed the diagnosis. (2) Three and a half months after opening the mastoid, the patient showed distinct brain symptoms; intense headache and paralysis of the external rectus of the left eye. I opened the mastoid process, which had completely closed, whereupon the symptoms subsided. Cure, after two months.

Dr. W. F. Holcombe, New York, N. Y.: I am firmly convinced that the drill used by dentists is the best which can be used for opening bony parts for the exit of pus. These drills are of many sizes. Great care must be used in not pushing the drill too hard, as it cuts more rapidly than the hand-drill.

Dr. Paddock, New York, N. Y.: Found the drill run by the dental engine valuable for drilling into the mastoid cells, when the operator preferred the drills to the gouge, as it is perfectly under the control of the hand of the operator, and, with a small drill, any size of opening can be cut. The small amount of pressure required makes it useful.

Professor Frothingham, in closing the discussion of his paper, said he would be very brief, as the subject had been already very fully debated. In answer to Professor De Rossi: he had not been in the habit of perforating the mastoid for simple chronic suppuration of the middle ear, and he advised it only when an examination and study of the case revealed a greater amount of secretion than would be ordinarily furnished by the tympanic cavity alone, with a further probability that it was poured into the tympanic cavity from the mastoid cells, and not from some other direction. This is a matter for careful study and consideration, and from the result of this study of the case, we should determine whether or not benefit would be likely to follow the operation. He had no doubt many obstinate cases of chronic suppuration of the middle ear could thus be cured. He would further remark that the situation of the mastoid cells and antrum, with reference to their communication with the tympanic cavity, is such as to lead usually to a retention of pus in the mastoid in most cases where the cells had become extensively involved in the suppurative process. In order to drain this cavity he believes an external opening preferable, more safe than any that can be made through the wall of the meatus, or tympanic cavity. The external table of the mastoid in such cases should not only be opened, but the opening should be large and extend well down toward the apex of the process; indeed, the temporal bone, which he had exhibited to the section, showed a distance between the posterior wall of the external meatus and the sigmoid fossa of only four and six-tenths millimeters; it showed, also, the necessity of making the perforation so low down that the cells should not be reached above the central axis of the auditory canal. An objection had been made that surgeons dread to do the operation, and that it should be resorted to only when the indications are plain. In his paper he had advocated a more frequent resort to the operation than he had been accustomed to practice. In reviewing his past experience he did not doubt that he could have safely relieved many patients by an operation—have effected a more speedy cure than nature had done without this aid. Fortunately, he had had no case of death where operation had thus been omitted in his private practice, but several cases had come to his clinic at a stage of the disease beyond any hope, in which an early operation might have saved life.

He did not wonder that surgeons dreaded the operation with drills. While engaged in general surgery, he had performed nearly all the capital operations, and had approached no operation,

not even opening the sac of an aneurism of the common carotid, with more solicitude than some of these operations upon the mastoid with a drill, which he regarded, with Schwartz, as a "drill into the darkness." Who, with such a method of operating, in such an important and variable anatomical region, can feel that he is not placing his patient in great danger from the operative procedure alone. The object of treatment is to *lessen* the dangers to which the patient is exposed, and not to increase them. With only unsafe methods of operating, we may rightly withhold surgical interference, when with available safer methods we should urge it. After careful study of Schwartz's method, he is convinced that it is attended with so little danger and difficulty that we may urge it in many cases which formerly would have been left to the expectant plan. He believes that the cases of spontaneous cure reported could have been more speedily cured by perforation and with less danger. The subject is too extensive for exhaustive consideration at any single conference, but that the mastoid is as liable to primary inflammation as other bony structures, seems to be a fact overlooked, or but imperfectly considered by the profession. Professor De Rossi had very truly said that pain, alone, is not generally regarded as sufficient indication for the operation. The pain that calls for perforation of the mastoid must be studied. It is generally a deep-seated, throbbing pain, more severe at night, and resists all other efforts for its relief. The patient is unable to attend to any duty. We often find it affecting other bones, without external evidence of disease. He has seen many cases in which the tibia was affected. His esteemed colleague, the late Professor A. B. Crosby, had taught him how, speedily, to cure many of these cases, by boring into the bone with a common gimlet, and he opened into the mastoid in this way. An opening into the bone affords most speedy relief in inflammation of the bone. He has seen operations of the kind, with immediate and permanent relief, though no pus was found, and no appearance of sclerosis was visible to the eye. There are numerous cases in which perforation of the mastoid in search of pus has led to relief without finding pus or sclerosis. He believes pain, alone, under some circumstances, constitutes a positive indication for perforation.

SECTION ON MILITARY AND NAVAL SURGERY AND MEDICINE.

SECOND DAY—AFTERNOON SESSION.

The discussion of abdominal surgery was first taken up.

Dr. W. N. Hingston, of Montreal, Canada,

thought that when any doubt existed as to the course of the bullet, operative procedures were necessary. The speaker considered the paper by Professor Senn the most able he had ever heard.

Regarding Dr. Homans' paper, he mentioned that ventral hernia occurred in ten per centum of his cases; this the speaker considered rather large. Dr. Homans had stated he had operated for nervous affections in five cases; one was relieved, the other four were not; other professional men had given the opposite result. The speaker remarked that he believed Dr. Homans, but did not believe the others.

Dr. J. B. Murphy, of Chicago, Illinois, remarked that in regard to the incision being made in the median line, he was in one case compelled to deviate from this rule in order to reach the gut. If the operation is not dangerous to life, he considered it compulsory, and if the bowel is not injured it does no harm.

Professor W. F. Peck, of Davenport, Iowa, remarked that as regards foreign substances in the peritoneal cavity, he had put in forty-seven sutures in an ovarian cyst.

Dr. S. C. Gordon, of Portland, Maine, stated that out of eighty cases he had seen three of ventral hernia; he had operated in thirty-three hysterical cases, and twenty-five would say today they were cured, which differed from other statements made.

Dr. Cowden stated that he himself suffered from invagination of the gut (referring to Dr. Senn's paper), but the finger inserted into the bowels could just reach it; after days of suffering a long rubber tube was inserted into the rectum, and a large bottle of water secured at the other end and gradually raised; suddenly there was a sharp report and the abdomen was distended. The speaker thought the gut had been ruptured, but the invagination had been reduced, Professor Senn's proofs upon dogs notwithstanding.

Professor T. G. Richardson, of New Orleans, Louisiana, remarked that his experience in these cases was that the percentage in the negro was in excess of that in the white man.

Professor Donald MacLean, of Detroit, Michigan, read a paper on

THREE CASES OF SURGICAL DISEASE OF THE KIDNEY WITH AN ACCOUNT OF OPERATIONS PERFORMED FOR THEIR RELIEF, THE COMPLICATIONS WHICH AROSE, AND THE RESULTS.

The first case mentioned was that of a woman, twenty-one years of age, who was supposed to be suffering from an ovarian tumor. Laparotomy was performed. The patient entered the

hospital October, 1884, and in January, 1885, was perfectly well.

The second case was a woman, forty years of age, the same result being secured; all trace of kidney-tissue had disappeared in the immense cyst.

The third case was a child, twenty-two months of age; this case resulted fatally.

The next paper, by Sir Thomas Longmore, of Netley, England, relative to

THE DESIRABILITY OF PROVIDING SOLDIERS IN SERVICE IN THE FIELD WITH SOME FORM OF PRELIMINARY DRESSING FOR WOUNDS,

was read in abstract by Dr. Marston, of the British War Office: The custom of issuing "a first field dressing to soldiers in warfare," was first introduced in the British army, by general order, during the Crimean war, in the year 1854. Since that date they have been more or less used by the Continental armies, and they now form one item of the authorized field equipment of soldiers of the German army. The paper discussed the question of the materials most suitable for the purpose, and quoted the opinions of eminent military surgeons concerning their use. The paper was accompanied by a dressing designed by the author for this purpose. It possesses the advantage of being both complete and compact.

A translation in abstract, of a paper by Professor Von Esmarch, of Kiel, Germany, upon the same subject, was read by Dr. M. J. Stern, of Philadelphia, Pennsylvania. The author described the requisite qualities of a dressing for the purpose, and advocated the use of antiseptic materials for its composition. A sample, designed by the author in accordance with his views, was exhibited.

In the discussion which followed, Dr. Reed Brockway Bontecou, of Troy, New York, strongly advocated the use of a preliminary dressing, and showed that even large wounds received on the battle-field could be to some extent freed from complications, if at once occluded by an antiseptic dressing. But the difficulty with all the dressings heretofore proposed for army use is that they cannot, in all cases, be applied by the soldier himself; in a wound of the shoulder, for instance, the soldier would find it impossible to apply, or at least to keep such a dressing in position. The speaker presented a dressing designed by himself to overcome this difficulty, composed of a square piece of adhesive material, to the center of which is sewed the occlusive portion of the dressing, which, being placed over the wound, will be kept *in situ* by the adhesion of its border to the skin. Before applying it, he advised, in cases of gun-shot wounds, to thrust

into the wound of entrance a pledget of antiseptic cotton; the occlusive pad of the dressing, just described, is composed of this material, within which is included a mixture of salicylic acid and iodoform.

Dr. Joseph K. Smith, U. S. army, thought that if a primary dressing is used, it should be strictly antiseptic, but he deemed it necessary that every soldier should carry such a dressing.

Dr. Porter, U. S. army, related his personal experience in proof of the value of a primary antiseptic dressing. He had been accidentally shot while hunting in the Adirondacks, many miles from any settlement. The wound was packed with iodoform and gauze, and this primary dressing was not removed for some days, in fact, it was never entirely removed. He was throughout comparatively free from pain, his wound healed rapidly without suppuration, and within a month was well.

The next paper, by Dr. Neuderfer, of the Austrian army, entitled

ON THE PRESENT STANDPOINT OF ANTISEPSIS
AND THE BEST MODE OF ITS APPLICATION IN
WAR,

was read by title, after which a paper, by Dr. B. A. Watson, of Jersey City, New Jersey, on

THE PRIMARY TREATMENT OF GUNSHOT
WOUNDS,

was read. The author first adverted to the requisite qualifications of a military surgeon, and the duties required of him; discussed the selection of a proper site for a field station, and the means which should be adopted primarily for the arrest of hæmorrhage. As the ligation of arteries is only, under the circumstances, exceptionally required, compression should be relied on to control hæmorrhage. The author urged the importance of removing all foreign bodies from the wounds, and advocated the occlusion of the wounds of entrance and exit with aseptic bandages and compresses. Thoracic and abdominal wounds cannot be treated at the field station, and should be removed from the scene of action as rapidly as possible. Bayonet wounds should be treated in the manner suggested for gunshot injuries, while wounds produced by large projectiles, fragments of shells, and the like, should receive the treatment usually recommended for injuries caused by machinery and railroad accidents. The author closed with a few directions for retaining fractured bones in apposition, and the means employed therefor.

The discussion of the paper was opened by Dr. Cullen, who averred that it was impossible to comply, upon the battlefield, with all the conditions imposed of strict antiseptis; the speaker

spoke of his large experience during the late war, and characterized all attempts of this nature as utterly futile. Rest, he said, was the best primary treatment, and the blood poured out upon the wound was the best antiseptic. Movement was fatal to many cases; the wounded should therefore be as gently handled as possible under the circumstances, sheltered under trees, and kept in a state of immobility.

Dr. William Varian, of Titusville, Pennsylvania, spoke of the dressing of a wound in its own blood as a procedure taught to the profession many years ago, and while he recognized the fact that many cases did well when treated in this way, he thought it the duty of the surgeon to treat the wound aseptically, in accordance with modern ideas, as it has been proven beyond a doubt, that such treatment insures a larger percentage of successes than by the time-honored procedure lauded by the former speaker.

Dr. G. T. Langridge, of England, agreed with Dr. Cullen so far as the importance of immobility is concerned. The less a wound is interfered with the better the chance of recovery, but a strict antiseptis is a necessity; the speaker had found that antiseptic wool was a better material for occluding the wound in primary dressing than any other. It is extensively used in the British army.

Dr. Carnochan, of New York, N. Y., shared the opinion of Dr. Cullen regarding the primary treatment of wounds in the field, and with him recognized the impracticability of using the antiseptic dressing on the field of battle, although he is in favor of it in private and hospital practice, where there can be no doubt of its great utility. The soldier himself becomes too indifferent, by reason of constant exposure to danger, to give heed to such details and appliances as the antiseptic treatment demands, so that any dressing designed to be applied by the soldier himself is without practical value.

Dr. L. von Farkas, of Buda-Pesth, Hungary, then read a short paper giving statistics of results of antiseptic treatment of wounds, which were very favorable to the method, and exhibited a form of drainage-tube and a speculum designed by himself for the exploration of gunshot wounds.

The next paper was by Dr. Eli A. Wood, of Pittsburg, Pennsylvania, entitled

THE IMPORTANCE OF THE GOVERNMENT'S SECURING AND PRESERVING VITAL STATISTICS
IN THE ARMY AND NAVY FOR THE BENEFIT
OF SUBSEQUENT APPLICANTS FOR PENSIONS.

He emphasized the duty of the Government towards its soldiers and seamen, and alluded to

the cost, trouble, and injustice to applicants for pensions where no complete and authentic records are preserved. He urged that the Pension Office should be so administered that not only individual interests should not suffer, but also so as to protect the Government against imposters. He urged that all military and naval surgeons keep a full record of facts pertaining to the clinical history of all diseases and injuries incident to soldiers and seamen.

The last paper of the day, by Dr. Daniel Smith Lamb, of Washington, D. C., on

THE IMPORTANCE OF INTERNATIONAL REGULATIONS FOR THE MEDICAL TREATMENT OF PRISONERS OF WAR.

They should be treated, not as criminals—harshly treated or robbed of their personal effects—but as human beings worthy of considerate treatment. They should be provided with such food, clothing, shelter, and occupation as will preserve health. If captured while sick or disabled by wounds, or if they become the prey of disease after being captured, they should receive such treatment as will tend to promote recovery. If the captors are unable to afford the proper care or treatment, they should be paroled and returned to their own side.

SECTION ON LARYNGOLOGY.

SECOND DAY—MORNING SESSION.

Dr. Lennox Browne, of London, England, read a paper entitled,

RECENT VIEWS AS TO THE PATHOLOGY AND TREATMENT OF TUBERCULOSIS OF THE LARYNX.

The tubercular bacilli are generally admitted as a cause of specific laryngitis. Entrance is effected through the air passages, and they are especially liable to accumulate in the upper parts of the lungs, where there is less respiratory action. The disease is usually secondary to pulmonary tuberculosis, and may be due to infection from the bacilli in the sputa coughed up and inoculating some abraded or unhealthy and irritated portion of the larynx, or the germs may find their way thither through the lymphatic system. The bacilli, like all parasites, act as an irritant, and eventually cause breaking down of the tubercular deposits.

They must have an unhealthy or abraded surface on which to locate and thrive, and are prone to choose some weak point. Whether carried by the air, sputa, lymphatics, or general circulation, cases are recorded of infection through wounds and teeth that have been extracted. The author of the paper quoted cases tending to confirm his views.

The state of the health and the assimilation of

food together with tissue nutrition, have more to do with the development of tuberculosis than have locality or climatic conditions. Not only may we have laryngeal tuberculosis as a secondary infection, but we find cases where it is primary. The laryngeal symptoms may be the first to attract attention, and even become far advanced before pulmonary lesions can be detected. This is confirmed by many observers. The bacilli are recognized in the sputa, there is pain in the larynx, and difficult deglutition.

The larynx presents specific appearance. We find the infiltration, dwelling, and ulcers, but still can detect no pulmonary lesion. There must have been some neglected chronic laryngitis, or some solution of continuity when exposed to the presence of these germs. Cases are reported where these local symptoms have yielded to treatment before pulmonary complications were added, and the patients were discharged apparently cured.

Treatment.—Where the general system is not broken down, or the disease advanced to the lungs, sea or mountain air and high altitudes, especially in pine regions, are of vital importance. Oxygen, pure air, and the absence of germs are here more to be relied on than the thermal or climatic agents. Dr. Moore has ceased to advise the inhalation of medicated steam; but prefers oxidizing agents. Inhalations of vapor from turpentine, oil of eucalyptus, and menthol he has used with success.

It is well established that tuberculosis is a blood-poison, as is pyæmia, septicæmia, and the like. Germicides should be used, and benefit will result. He places great confidence in atropine, not only as a sedative, but a germicide as well. Arsenic often works in the same manner as does mercury in syphilis. So, also, do the salts of calcium, where there are tubercular deposits. The aniline treatment has not been a success, and the gaseous injections are still on trial. Experiments with sulphuretted hydrogen show temporary improvement, with diminution of the amount of sputa expectorated, less pain and less distress from persistent cough. Still the permanent benefit is doubtful. This treatment needs careful supervision, and should not be trusted to the patients or their friends. The local treatment of tubercular laryngitis gives best results, especially where systemic treatment is also employed to maintain health and nutrition. It is well to use cocaine, and to employ the galvano-cautery or lactic acid to destroy the deposits and induce healthy healing of the parts.

Where the infections are local, success is in proportion to their accessibility.

He does not like iodoform or iodol dissolved in ether, as the ether is too much of an irritant. He prefers a brush made with cotton to the spray, in that it coats the surface better and is pressed into folds which are protected from the spray by the spasm of the larynx. The continued use of the spray he considers to be dangerous to the cilia of the epithelial cells. Local and systemic sedatives are emphatically called for. Insufflation is not as good as where emulsions are made with acacia, as they are apt to form cakes. Cocaine gives temporary relief, but morphia, belladonna and balsam are more permanent in their relief of both pain and cough.

The surgical measures are to scrape away the deposits with curette or forceps, under cocaine, and apply lactic acid. To stab or incise may relieve tension and congestion, but is bad in that it gives new foci for infection. For the same reason it is better not to remove glomerules unless respiration is seriously interfered with. Tracheotomy, for the purpose of giving rest to the larynx, is useless or worse. The larynx does not then receive the necessary air and oxygen, and bacilli-infected mucus accumulates. The cold and dry air irritates the lungs and may induce pulmonary complications. Besides, the wound may become infected. Intubation of the larynx likewise causes too much irritation and aggravates the trouble, independent of the risk of blocking up the tube. He refrains from removing an elongated uvula. He does not approve of the recent suggestion of extirpating diseased portions.

Many apparent cures are reported, and he has had such cases himself, but he is inclined to doubt their permanence. One can improve the condition of the larynx, stop pain and cough, cause better assimilation of food, and improve nutrition. There result local relief and apparently satisfactory results, but scarcely a cure, as claimed by Schmidt, Bosworth, and others.

Important suggestions.—(1) Early diagnosis and treatment are important. (2) Do not be carried away with new remedies. (3) Never be too active in destroying tissue; rather attempt to heal instead. (4) It is better to observe facts and be influenced by the experience of many, than the new ideas of a few.

Dr. Sinclair Coghill, Ventnor, England, advised more effort to alleviate pain and distress which tend to shorten life, and to obtain as much rest for parts as possible, and to look to body nutrition. He also quoted cases of primary tubercular laryngitis from infection. He has seen the greatest benefit from iodoform and morphia by careful insufflation. He has seen cases apparently

cured. The medium or tissue in which the bacilli thrive is to him more important than the bacilli themselves. We do not see parasites in vigorous tissues. Those well nourished are not liable to infection. He advises not to rely on local treatment alone, but improve digestion and assimilation.

Professor J. S. Cohen, of Philadelphia, Pennsylvania: Sulphurous treatment improves tissues or soil so that germs cannot flourish as well. He only recalls two cases of recovery from supposed tubercular laryngitis. He has scraped and applied lactic acid, also used morphia, iodoform, and atropia, and he believes in them. He condemns tracheotomy to obtain rest.

Professor E. Fletcher Ingals, of Chicago, Illinois, finds it difficult to choose between high and low altitude. High altitudes are injurious where the disease is advanced. Calcium salts are beneficial; so, also, are the chlorides. The use of sulphuretted hydrogen, in his experience, increased pain and other unpleasant symptoms, so he abandoned it. He also had poor results from lactic acid. Morphia, carbolic acid, and glycerole of tannin with water form excellent wash or spray. Tannin aids in alleviating pain by hardening the tissues. Glycerole of tannin without water is too irritating.

Professor M. F. Coomes, of Louisville, Kentucky, finds that iodoform works best, and uses it extensively for the pain by insufflation after cleansing with Dobell's solution. Whisky and water is excellent to cleanse away the mucus and ease pain so as to allow the patient to eat. He has seen a case recover, even when the epiglottis had sloughed away.

Doctor Devilbiss, of Toledo, Ohio, uses both morphia and iodoform, but with liquid vaseline which is sprayed in. He considers the liquid form of vaseline the very best medium. He uses it with iodine and iodide of potassium.

Professor W. E. Casselberry, of Chicago, Illinois, doubts the good effect of lactic acid as it causes too much irritation, increases the cough, and does harm. The main point is to cleanse thoroughly, and to use morphia and iodoform, or, better yet, iodol, which is lighter and more easily diffused. The temporary effect of cocaine is excellent, but its continued use is bad. It causes reaction with congestion, increased irritation and inflammation. Morphia is better, and with iodoform effect lasts a longer time.

Professor F. O. Stockton, of Chicago, Illinois, has not had any success from scraping ulcers, and uses lactic acid from ten to ninety per cent. He saw a case in Vienna where there was both tubercular and syphilitic ulcerations of the larynx.

Dr. John Mackenzie, of Baltimore, Maryland, is skeptical as to permanent cures, and thinks that they are more likely diphtheritic cases. Has also doubts as to bacilli, with reference to cause and effect. Why will not they be caught in the nose of the same individual when abraded surface exists? He is in favor of constitutional treatment, and of local treatment with bichloride of mercury, 1 to 2,000.

Professor L. Curtis, of Chicago, Illinois, says that atropine is of no use. He sprays the larynx with nitrate of silver, with the result of healing the ulcers.

Dr. Browne closed the discussion. He believes in the bacillary origin of the disease, but treats both bacillus and tissue as well. Note the close relation of bacillus of tuberculosis to that of lupus. One must treat individual cases differently. He has had no good results from large doses of quinine, as it was not assimilated. Iodide of potash proved harmful, by causing weight and interfering with nutrition. It is of benefit only in syphilitic laryngitis, which can readily be mistaken for tubercular.

AFTERNOON SESSION.

For special discussion a paper was read, entitled

RECURRENT HÆMORRHAGES OF THE UPPER AIR-PASSAGES, BY WILLIAM PORTER, M. D., ST. LOUIS, MISSOURI.

Laryngeal hæmorrhages are immediately dangerous only when beneath the mucous membrane, when they produce a hæmorrhagic œdema and impending asphyxia. Laryngeal hæmorrhage is very easily mistaken for hæmoptysis, but on auscultation one can discover no pulmonary signs. A list of the causes of hæmorrhage from different parts of the upper air-passage was given, with both medicinal and mechanical treatment of each.

Professor Stockton, of Chicago, Illinois, gave the history of a woman who consulted him with reference to coughing up a considerable amount of bright, frothy blood, which apparently came from the lungs. Examination revealed a small pulsating vessel on the right ventricular band, from which there was a slight spurt of blood at each pulsation. After failing to control it with iron, tannin, etc., the vessel was destroyed with electro-cautery.

Dr. Lennox Browne, of London, England, said that it was usually found in connection with syphilitic or tubercular larynx, sometimes caused by intemperance, and may require general treatment as well; straining of the voice may cause a congestion and dilated vessels. In alcoholic

cases we frequently find such patches at the base of the tongue, and above the epiglottis.

TREATMENT OF LARYNGEAL PAPILLOMATA.

Professor W. E. Casselberry, of Chicago, Illinois, read a paper on this subject.

The treatment resolves itself into the best methods for removal. Forceps, cautery, curette, or a combination. For small tumors forceps are most commonly used, and are best in that they are simplest. For larger tumors they are bad, for the reason that only small portions can be removed at one sitting, and it will have regained its former size before the resulting inflammation will have been sufficiently reduced to admit of another operation. A case was related to illustrate this, where the tumor was afterward extirpated by galvano-cautery. In another case there were a large number of small tumors returning as fast as removed. He had to resort to curette and follow up with cautery. *Sajous'* electrode was exhibited, also a handle with light wires attached to the center instead of the end. He has had excellent results with the cautery. He uses a curette and cauterizes the bases.

Professor J. S. Cohen, of Philadelphia, Pennsylvania, uses sponge for small papillomata, especially when below or upon the vocal chords. He operates through the crico-thyroid membrane for larger ones. He has not found a cautery so successful; it only scorches the mucous membrane, and there is danger of injury to other parts. He believes in crushing with forceps if he cannot remove.

Professor Ingals, of Chicago, Illinois, advocates using chromic acid on a probe and carefully destroying with that agent.

Dr. Lennox Browne, of London, England, for twenty years used sponge, but he now prefers the snare. He gave up sponge because he once lost the end of the applicator in the windpipe and legal complications developed therefrom. He prefers a safe cotton brush with solid and jointless whalebone applicator. For persistent hyperæmia he enjoins continued silence and uses lead coll over the larynx. He drew a diagram showing the situation and size of the papillomata in the throat of the Crown Prince of Germany.

It was nearly the size of a split-pea, and situated on the vocal chord, close to its junction with the arytenoid cartilage, apparently having its base partly in the ventricle. What now worries Dr. Mackenzie is not that it may be malignant, but the persistent laryngeal hyperæmia. His work in Berlin was accomplished with strange instruments, and not well suited for the work. He found that the surgeons there had decided upon removing one-half of the larynx.

Dr. C. Slover Allen, of New York N. Y., gave

the history of a case operated on for large papilloma below the vocal chords. It was so large as to almost completely close the trachea. There was great dyspnoea on slight exertion, frequent severe choking spells at night, and extensive loss of weight. As the tumor could not have been forced through the larynx, even if severed, it was removed through a free opening in crico-thyroid membrane. It was taken off by snare, then the base thoroughly extirpated by curette and cauterized. The attachment was just below anterior extremity of left vocal chord. There was no preliminary tracheotomy. The result was complete restoration of voice and health.

Professor Casselberry, in closing the discussion, said that he used twenty-five per centum cocaine, and had no difficulty in controlling the amount of destruction by cautery. He presses the electrode well into tumor before making the circuit. He has not found the cautery fickle; but has had unsatisfactory results from crushing.

Next in order was a paper for discussion on THE DIAGNOSTIC DIFFERENTIATION OF RECENT TUBERCULOSIS, SPECIFIC AND RHEUMATIC LARYNGEAL DISEASES.

Professor E. L. Shurly, of Detroit, Michigan, gave an abstract of the paper, which can be best shown in tabular form:

LARYNGEAL PHTHISIS.	SYPHILIS.	RHEUMATISM.
<i>Hyperamia or Congestion.</i>		
Occurs later, but not marked.	Always persistent and extended.	Always present not intense; often localized.
<i>Tumefaction or Infiltration.</i>		
Constant and peculiar; affecting arytenoids.	Not marked.	Rare, except arthritic arytenoid joint.
<i>Condylomata and Gummata.</i>		
None.	Sometimes.	None.
<i>Hæmorrhage.</i>		
Rare, as result of erosion.	Very rare.	Common.
<i>Mobility.</i>		
Slightly affected.	Slightly affected.	Excessive in arthritic.
<i>Ulcerations.</i>		
Common, develop slowly, scattered, small, irregular, or oval, usually on epiglottis and arytenoids.	May be rapid, but rare; in larynx, solitary; symmetrical and with areola.	None.
<i>Hoarseness.</i>		
Present.	Slight; also slight dysphonia.	Present; also dysphonia or aphonia.
<i>Dysphagia.</i>		
Only when epiglottis and arytenoids are affected.	Not marked, unless pharynx involved.	Persistent and constant.
<i>Pain.</i>		
Absent in larynx.	Absent.	Constant and about neck.
<i>Expectoration.</i>		
Often contains bacilli.	Mucus.	Slight.
<i>Cervical Glands.</i>		
Not enlarged.	Enlarged.	Not enlarged.
<i>Sensation.</i>		
Not perverted.	Not perverted.	Often perverted; paresthesia; frequent spasm; also chorea.

CHRONIC RHEUMATIC LARYNGITIS.

Professor E. F. Ingals, Chicago, Illinois, read a paper on the above subject. It has been recognized for several years, but never thoroughly studied. He has found but few cases mentioned in literature; cases are rare, and usually associated with rheumatic diathesis. He has seen cases where the hyoid bone and posterior part of larynx presented the only evidence of the disease. More often it occurs with attacks of articular rheumatism. It is erratic and obstinate. Pain may disappear for a few days and then return. In no case is the pain very severe. Hoarseness and aphonia are marked. Pain is worse in damp or wet weather, but varies from day to day. The larynx alone may be invaded, or the base of the tongue and hyoid. In some cases it is slightly swollen, in others not. There may be distension and swelling of the arytenoid joint. One may diagnose by excluding neuralgia, phthisis, and syphilis. Often it is confused with neuralgia when no swelling exists. It may last from two months to a year or more, with periods of immunity. Generally there is ultimate recovery, though one case lasted four years.

Treatment.—Cleansing and astringent spray. Salicylate of soda, iodide of potash, alkalies, oil of gaultherium, ext. phytolacca, etc., used with benefit.

Dr. A. B. Thrasher, of Cincinnati, Ohio, read a paper on

RESORCIN IN THE TREATMENT OF NASAL CATARRH.

Resorcin has a great affinity for oxygen, and absorbs it from the tissues; reduces congestion and inflammation by contracting the vessels. In hypertrophic catarrh, it contracts turbinated tissues and effect lasts a long time. The effect of cocaine is only temporary. Resorcin gives good results in infectious skin diseases because it is antiseptic; penetrates skin and kills germs. Cocaine interferes with secretion and the proper functions of mucous membrane. Resorcin gives the same results, but normal functions remain. It is slower in action and more lasting in result than cocaine. Cleanse nose with boracic solution, or Dobell's, and use two to ten per cent. in vaseline or cosmoline; use a spray every second day. For the patient's own use give two to four per cent. It will cure where dilated turbinated tissues exist in from two to six weeks. It allays all redness and congestion. The turgescent state yields better than where there is true hypertrophy.

(To be concluded in the October number.)

BOOKS RECEIVED

- "Anæmia." By Frederick P. Henry, M. D.
 "Public Health." The Lamb Prize Essay, 1886. Second edition.
 "Maternity, Infancy, Childhood." By John M. Keating, M. D.
 "Ligaments, Their Nature and Morphology." By Dr. John Bland Sutton.
 "Treatment of Disease in Children." By Angel Money, M. D., M. R. C. P.
 "Elementary Microscopical Technology." By Frank L. James, Ph. D., M. D.
 "Evacuant Medication, Cathartics, and Emetics." By Henry M. Field, M. D.
 "The Physician's Dose and Symptom Book." Seventeenth edition. By Joseph H. Wythe, M. D.
 "The Vest-Pocket Anatomist." Thirteenth Revised Edition. By C. Henri Leonard, A. M., M. D.
 "A Practical Treatise on Renal Diseases and Urinary Analysis." By William Henry Porter, M. D.
 "A Treatise on Diphtheria," etc. By A. Saune. Translated by Henry Z. Gill, A. M., M. D., LL. D.
 "A Practical Treatise on Diseases of the Eye." By Dr. Edouard Meyer. Translated by Freeland Fergus, M. B.
 "Pathology of the Puerperium." Part IV of a Practical Treatise on Obstetrics. By Dr. A. Charpentier. Translated by E. H. Grandin, M. D.

PAMPHLETS RECEIVED.

- "Feeding Patients Against the Appetite." By Ephraim Cutters, M. D., M. M. S.
 "A New Treatment of Diseases of the Respiratory Organs and of Blood-Poison, by Rectal Injection of Gases." By Dr. V. Morel.
 "The Past, Present and Future Treatment of Homœopathy, Eclecticism and Kindred Delusions." By Henry I. Bowditch, A. M., M. D.
 "The Curability of Epilepsy and Epileptoid Affections by Galvanism and Phosphated and Arseniated Bromides." By C. H. Hughes, M. D.
 "Some Considerations Concerning Cancer of the Uterus, Especially its Palliative Treatment in its Later Stages." By Andrew F. Currier, M. D.
 "A Review of Twenty-two Cottage-Cases, Occurring in the Women's Hospital, in the service of Dr. T. Gaillard Thomas. By H. H. Buckmaster, M. D.
 "Congenital Occlusion of the Posterior Nares." By Alvin A. Hubbell, M. D.
 "Transplantation of a Rabbit's Eye into the Human Orbit." By Charles H. May, M. D.
 "Healthy Homes and Food for the Working Classes." By Victor C. Vaughan, M. D., Ph. D.
 "The Physiological Conditions and Sanitary Requirements of School-Houses and School-Life." By A. N. Bell, A. M., M. D.
 "Transactions of the Massachusetts Medico-Legal Society," Vol. I, No. 9, 1886.
 "Anatomical Researches in the Human Rectum, and a New Method of Rectal Inspection." Part II. By Walter J. Otis, M. D.
 "The Doctorate Address Delivered at the Semi-Centennial Anniversary of the University of Louisville, Medical Department." By David W. Yandell, M. D.

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ORIGINAL COMMUNICATION.

ATHEROMA OF THE LEFT CORONARY ARTERY RESULTING IN ANEURISM OF THE APEX OF THE LEFT VENTRICLE.

READ BEFORE THE CHICAGO MEDICAL SOCIETY, JUNE 6, 1887, BY ROBERT TILLEY, M.D.

ANEURISM of the heart is sufficiently rare to justify the presentation to the profession of a single case. The rarity alone of the affection must be associated with a certain obscurity in making an ante-mortem diagnosis, and details of observation are, therefore, of manifest importance.

The patient was 57 years of age, and his occupation was that of a lawyer. His previous life was unexceptionally exemplary. He did not use tobacco in any form, and was exceedingly temperate and methodical in all his habits, his carriage was such as to suggest the impossibility of any hurry on his part. His general build may be characterized as corpulent, although when young he was very thin. At the age of 30 he was declared to be dying of consumption. Recovery, however, seems to have occurred without medical assistance.

An ill-defined malaise extending over a period of six weeks or two months suddenly increased to such an extent on the 20th of October, 1885, that he was unable to leave the house and was obliged to call assistance. This malaise con-

sisted of wandering pains, not severe, over the chest extending to the left shoulder and down the left arm, sometimes reaching the wrist. They were not periodic, and could not be associated with any definite act of daily life, but would rather come on when any change of action was about to take place.

He first called my attention to this, thus: "I don't know whether I want to follow a doctor's directions or not. I get occasionally flying pains over my chest and in my left shoulder, but on walking about a little I can make them disappear." As he always had a marked antipathy for medicine of any kind, and I did not possess any firm conviction of any greater benefit likely to follow anything I could suggest than the benefit he claimed from exercise, I told him to continue to use the method he had found successful, and report later. At this time I had no conception of the existence in his case of atheromatous coronary arteries, nor did I suspect that the wandering pains were associated with incipient angina pectoris.

About six weeks after the interview

above referred to, an acute attack of difficulty of breathing, associated with severe coughing and anxiety of countenance, came on. From this time he left the house only for short walks. The pulse at this time was 120, feeble but regular. His breathing was very laborious. He could not lie down on the back or left side, and only for a short time on the right side. Cough was very troublesome. No special features present in the alimentary canal. On percussion no perceptible enlargement of the heart was detected; percussion also failed to reveal any enlargement of the liver. On auscultation the heart revealed no definite abnormal sounds. The principal feature which I observed was that of a *asystole*, the ventricles seemed to stop as though shutting down on a pledget of wool.

Later this peculiar *asystole* subsided. I find that *Constantin Paul quotes a case published by Potain in *Gazette des Hôpitaux* 8, août 1882, which, for the sake of comparison, I quote: "Aneurism of the septum always terminates fatally with more or less rapidity. Its course is acute if there has been an abscess of the ventricular walls; the rupture is followed immediately by accidents either ulcerative endocarditis with the entrance of pus and detritus into the circulation, or acute *asystole* from a sudden alteration of the cardiac muscle. In the former event death occurs almost immediately; in the latter within eight to twelve days. When the disease runs a chronic course it presents from time to time accidents resulting from a slight ulceration—phenomena of *asystole*—which last for a few days and then subside. The disease may thus run along for a number of years."

This feature of *asystole* struck me as the one striking peculiarity of the case.

There was at this time no *œdema*, no fever, no albumen in the urine.

From the beginning his condition was considered grave, and consultation was obtained from the first.

Drs. H. A. Johnson and R. H. Babcock both saw the case, and the former

remained as consulting physician to the end. The various heart tonics, such as strychnia, arsenic and digitalis, were used with no demonstrable effect except this, that when the digitalis was increased so as to diminish the frequency of the heart's action, the action became so tumultuous and incoördinate that it was deemed best to let it beat at the rate that it found most convenient. In about a fortnight after the commencement of the acute attack anginal pains became more prominent, and atheroma of the coronary arteries was suspected. There was no evidence, however, of any atheroma of any superficial vessels. From this date a bottle containing carbonate of ammonia and camphor became his companion, supplemented with small pellets of nitro-glycerine, 1-100 of a grain. The latter gave more satisfaction than the nitrite of amyl. The anginal pains were not at any time characteristic for their severity, but the pallor of countenance and anxious expression were characteristic.

The feet had exhibited, on several occasions, a tendency to *œdema*, but about ten days before death it began to increase rapidly, and no remedies were found capable of removing it. The *œdema* extended gradually to the hips, abdomen and chest, and about nine weeks after the acute attacks, while walking across the room, he fell dead.

He derived marked comfort from gentle exercise, in fresh air. It is worthy of remark here that this was his own device to relieve the wandering pains that he complained of before the severe acute attacks. When the sidewalks were covered with ice so that he could not prudently walk out of doors, he would wrap up and walk in a room with the windows wide open. Nitro-glycerine and carbonate of ammonia were the only remedies that gave him any appreciable relief.

The autopsy, which he himself requested—he had a horror of being buried alive—revealed nothing remarkably peculiar except the condition of the heart. This autopsy was performed on the day following the death, by Dr. Frank Cary in the presence of Drs. H. A. and Frank

*Diagnosis and treatment of diseases of the heart. Woods' Library.

S. Johnson, R. H. Babcock and myself. The heart was somewhat enlarged, all the valves were competent, there was little or no atheroma manifest except in the coronary arteries. One of these, the left, was almost completely occluded. It was just below this manifest atheroma of the left coronary that in the wall of the left ventricle near the apex the aneurism had developed. I should characterize it as about the size of a large walnut. The wall of the heart in the thinnest part was only two millimetres thick. The aneurismal cavity was filled with blood, part of which showed signs of organization and part signs of disintegration. The clot was evidently formed at two different periods. The microscopic sections, for which I am indebted to the kindness of Dr. F. S. Johnson, show this well. There were no signs of chronic endocarditis, but some of slight chronic myocarditis.

* Bramwell divides aneurisms of the heart into acute and chronic. "Acute Aneurism," he says, "may result from anything which causes rapid local softening of a limited portion of the cardiac wall. Acute ulcerative endocarditis, acute localized myocarditis and acute softening the result of thrombosis of the coronary arteries are the conditions which are most likely to cause acute local dilatation of this description."

"Chronic aneurisms of the heart," he continues, "are almost always the result

of chronic myocarditis. Fatty degeneration seems to be an occasional though extremely rare cause of this condition." He nowhere calls direct attention to an atheromatous condition of coronary arteries as a cause.

Dr. Mary Putnam Jacobi says (In Wood's Reference Handbook): "The essential cause of heart-aneurism is thus identical with arterial aneurism, the lesion of structure is however different as might be expected from the difference of tissue in the heart and arteries. In the latter, that is, the arteries, nontraumatic aneurism nearly always depends on atheroma; in the former upon fibroid disease the result of chronic interstitial myocarditis."

In the present case, I think, there is no doubt that the starting point was the diminished calibre of the left coronary artery by this atheromatous condition diminishing the supply of nutriment to the corresponding tissue and thus producing the extreme thinness of the walls in the part supplied by the artery. The clot of blood was probably the result of the incapacity of the left ventricle to completely contract and expel its contents and probably occurred in part at the time of his acute sickness about nine weeks before death.

The presence of this clot of blood fully explained the characteristic sound which I clearly recognized at the first and which I described as though the ventricle contracted on a pledget of wool.

* Bramwell, *Diseases of the Heart*, p. 576.

NINTH INTERNATIONAL MEDICAL CONGRESS.

HELD IN WASHINGTON, D.C., SEPTEMBER 5, 6, 7, 8, 9, AND 10, 1887.

(CONTINUED FROM THE SEPTEMBER NUMBER.)

THIRD DAY.**GENERAL SESSION — WEDNESDAY, SEPTEMBER 7TH.**

The Congress convened at 10 A. M., and Professor Durante, of Rome, Italy, one of the vice-presidents, was invited to occupy the chair, whilst Professor Mariano Semmola, of Naples, Italy, delivered a general address on

BACTERIOLOGY AND ITS THERAPEUTIC RELATIONS.

The object of medicine is to cure disease. To cure diseases we must know the causes that produce them. The external causes are visible and tangible, but to discover the internal, invisible causes is the aim of medical science. To solve this problem we must employ the true method of solving all problems — the experimental method. Doctors lost themselves in fantastic speculations before this method was known. The wonderful progress of physiology has been made in the light of experimental methods. When morbid conditions had been studied, instead of going on with the same careful and slow research, physicians wanted to hurry on, because they wished simply to cure the sick. To apply the experimental method and, at the same time, go fast is, in the nature of things, impossible. Thus it happened while physicians were making experiments in the laboratory, instead of having patience to master their studies, they came at once to a conclusion. New hypotheses had to be made, and without knowing it they began again the same errors that had characterized the medicine of an earlier day. New systems thus came into the field, that were the opposite of the experimental method. If medicine is to progress and be a science, it must not leave the experimental method, otherwise there will be nothing but renovations of error and loss of time.

THE ERROR OF THE DAY

is bacteriology considered as the key to all pathology. Bacteriology should be studied, because it teaches what is in the microscopical world, the existence of which we had never dreamed—a world in which man lives and which is filled with

ENEMIES OF MANKIND.

We drink millions of microbes in water, and respire millions in the air. Sometimes these microbes affect us—perhaps killing in a few hours.

When we strive to cure the sick, we must proceed cautiously, because, before there has been a careful demonstration, if we attempt to deduce a remedy, there is danger of doing harm to the sick instead of curing them. This is the great harm modern bacteriology does. Doctors concluded at once that microbes were the cause of disease, whereas, in many cases, microbes are but

EFFECTS OF DISEASE.

We ought to reproduce the disease artificially by a microbe before concluding that it is the cause. The experiments made have not given any satisfactory results, except in carbuncle and tuberculosis. To conclude hastily that this or that microbe is the cause of any disease, is but to ignore or set aside the experimental method. The demonstration which the experimental method demands in this case would be complicated, because we would not only have to know that the microbe existed, but we would have to know what was the condition of the blood necessary to the culture of that particular microbe, and science tells us that, for the present, this is a problem we cannot solve.

We know very little of the normal condition of the blood, and biological chemistry is still in its infancy. Man cannot separate himself from these millions of parasites among whom he lives. That bacteriology may be a guide in the cure of disease, we must not only learn all we can of the microbe itself, but, more important than all, must ascertain all that is possible of the conditions of the field of culture. The science of the present knows nothing of the conditions of these fields of culture in living organisms. It is thus evident that in the present condition of bacteriology it cannot be taken as a guide for the treatment of internal diseases. The older school of medicines spoke of organic dispositions, or tendency to such and such a disease. This expression had no meaning, but it expressed the

fact. When bacteriology speaks of a need for a special field of culture it says the same thing, because we do not know of what the field of culture consists. Therefore, this cannot be called a science, because a science is never composed of unknown things; it goes from the known to the unknown. If a man supposes a fact instead of demonstrating it, the phenomena of nature are not reproduced. When he resorts to hypothesis the power of man disappears. If nature's laws are not respected, the telephone does not work, the electric light does not flash, the steam-engine stops. The doctor, then, is the only one who pretends to become the master of nature without knowing her laws. Referring again to the failure of medicine to follow up a discovery in the scientific way with thorough research and demonstration, and its tendency to accept conclusions quickly, Professor Semmola said that modern bacteriology may lead the way to the most fruitful field of inquiry in the future, but for the present it has produced no practical results in the cure of internal diseases. It has not, he claimed, been demonstrated in what measure microbes are the causes of diseases. He therefore hoped that the younger generation would continue experimental researches with the thoroughness of method which the great masters have transmitted to us. They must renounce their preconceived ideas in medicine, and interrogate nature without torturing her. Scientific independence must be preserved. They must not proceed without measuring their steps. He trusted that his desire for scientific independence in such researches would be echoed in this land of independence.

SECTION ON GENERAL MEDICINE.

THIRD DAY—AFTERNOON SESSION.

Professor John A. Ochterlony, Louisville, Kentucky, read a paper entitled

THE STUDY OF THE NATURAL HISTORY OF DISEASE.

He was deeply impressed with the importance of the subject in its practical bearing upon the solidity and permanency of medicine as a science. In endeavoring to discuss this he desired not to be understood as belittling in any way that science. It is not only well to admire past achievements, but also thoroughly to review the past to ascertain its deficiencies and seek the means most likely to overcome them. The study of the natural history of disease is most conducive to this end.

This subject is difficult on account of the vast scope and the complexity of disease. In looking over the ground we see in every department

of pathology unmistakable evidences of the all-pervading presence of laws.

The eagerness of the physician to relieve pain and restore health often causes him to manifest distrust in nature's agency in the cure of disease. Diseases themselves are perfectly natural though not normal conditions of the living body; and the same power which called them into being may also not unreasonably be supposed to be adequate to their removal.

The truth is, nature possesses far greater power in curing disease than is admitted. A knowledge of the natural history of disease is the necessary basis upon which to estimate all medication.

The multiplicity and divergence of scientific opinions result from the neglected study and consequent ignorance of the natural history of disease.

To arrive at a proper knowledge of the natural history of disease, the co-operation of large numbers of medical men throughout the world is necessary, dissecting and attending to the various morbid conditions which affect the human race. These observations must include patients affected with various diseases modified by age, sex, occupation, etc., the duration of the malady, the events marking its course, the mortality, and mode of death. We shall then be in a position to judge with positiveness the value of a drug in shortening disease, preventing complications, or averting a fatal result. There are many obstacles to the execution of such a plan. To some it will appear culpable to withhold the assistance of art, and consign a patient to the exclusive care of nature. Independent of the consideration of the benefits to be derived therefrom, all objections to such experimentations may be fairly met by the following arguments:

First.—Since we do not hesitate to subject patients in our public hospitals to treatment with medicines the action of which is imperfectly or not at all known, and consider it legitimate, it can be no less so in similar cases to simply watch the operations of nature.

Second.—It must not be overlooked that nature, having inflicted disease, is also in many instances adequate to its cure. This is true of both light and severe diseases—those in their nature grave, such as malignant fevers, tuberculosis and cancer spontaneously recover.

It is beyond dispute that the worst forms, and apparently hopeless cases of fever, recover unaided by medicine. Recovery from tuberculosis has most frequently occurred under simply good hygienic surroundings. Hence the steadily increasing favor with which the profession regards the climatic treatment of this formidable enemy of our race.

Third.—The strong tendency to recovery in acute affections is often admitted, and is a good reason in many cases for reducing medicinal interference to a minimum, and in many cases amply justifies allowing the disease to pursue the undisturbed and natural course.

Fourth.—The character of self-limitation which we now know to characterize many diseases should be a warning to those who entertain exaggerated ideas of the results produced by their treatment, and an encouragement to those desiring to study the natural history of disease.

Fifth.—Were it not that the *vis medicatrix nature* is no imaginary power, but a living reality, it would be impossible to understand how it is that many quite feeble or absolutely inert medicaments could have attained such a high reputation in the treatment of various and severe affections. To-day "sage" is known to have no medicinal power, yet its history is classical, and it has received the indorsement of the learned as an effective medicinal agent. How many drugs have, like the garden sage, been lauded for imaginary virtues, but after awhile have sunk, like it, into well-merited disuse. Yet while in vogue, and medical journals were filled with accounts of their vast powers, it was the *Great Silent Mother* who wrought the cure.

Sixth.—The indisputable fact that recoveries take place from similar diseases under quite opposite plans of treatment allows no other inference than that the recoveries are due to nature alone.

Seventh.—When one recalls how marvelously patients sometimes get well under the rude and pernicious medication inflicted by quacks, one is forced to conclude that nature is not only adequate to remove the original disease, but also to overcome the artificial disease not infrequently superadded by the *energetic ignorance* of the practitioner.

He was well aware that physicians cannot if they would, and should not if they could, forego all medicinal treatment in the management of all the sick under their charge. But in private practice instances will occur when such a course would be both safe and proper.

The greatest field for observation is the hospitals. It is well to set aside a certain number of cases and compare the results of medicinal and non-medicinal treatment.

Medical students should be taught not to believe in the exclusive power of art in the treatment of diseases, but more prominently the utility of studying their natural history.

Dr. Cronyn, of Buffalo, New York, discussed his paper. He thought that, as it is the natural

history of disease that teaches us, attention to it is best. After all, it often depends upon nature, keeping the patient quiet and assisting nutrition. The laity think diseases due to a poison varying in degree and intensity, according to the severity of the illness.

Dr. H. B. Hemenway, of Kalamazoo, Michigan, said: Our work is not as physicists, but as doctors, teachers. I fully agree with all that has been said in the paper. We, as physicians, have made the mistake of following the popular demand "to do something." In the methods of our studies of disease we should seek to learn the cause, general progress, and termination. We ought to study to aid recovery. We can do our patients but little good in any other way.

Dr. W. J. Scott, of Cleveland, Ohio, was pleased with the paper. He believed we would have a broader foundation by studying the history of the treatment of disease—what has been done, that we may know what ought not to be done. He objected to the too free use of compendiums of medicine instead of thorough and detailed works. He had faith in medicines. He then spoke somewhat out of line with the subject of the paper, upon the increased efficacy of our *materia medica* and the action of drugs upon specific diseases.

The President, Professor A. B. Arnold, said: If we are called to see a patient in an attack of apoplexy, the friends invariably want the physician to do something when we know that the patient ought to be kept quiet, to allow the clot to form. There is a form of diabetes where an excess of sugar taken into the body will be eliminated by the kidneys in the urine. We know that by taking only as much sugar as can be assimilated the patient will be cured. There is another form of diabetes where the sugar is from the animal tissues, and consequently this is not improved by such treatment. These he gave as examples showing the advantage of a correct knowledge of the natural history of disease in determining treatment.

Dr. Thomas H. Manley, of New York, N. Y., believed each disease had a special course and tendency to recover. He discussed quite freely the use and abuse of drugs.

Professor Ochterlony, closed the discussion by saying that he had been edified by the spontaneous expressions of regard for remedies; there was certainly not a word in his paper in reference to this subject. "I thought when Dr. Scott said so emphatically that he believed in remedies that perhaps he thought I did not." He wished to see an exact science, which could only be realized by the method suggested in the paper.

Dr. Pavy, of London, England, remarked, "I felt that I could not leave without saying I am heartily in accord with the idea that there is a natural history of disease, just as we each have a natural history of ourselves. By studying the natural history of disease we enable our own natural history to have its free play." He believed we needed, as physicians, more knowledge of agencies to cut short the natural history of disease. We also needed medicines to influence the mind as well as the body.

THE DISEASE OF INEBRIETY AND ITS TREATMENT.

Dr. T. D. Crothers, of Hartford, Connecticut, read a paper with this title. He mentioned the historic fact that inebriety was called a disease long before insanity was thought to be other than spiritual madness. On an old papyrus found in one of the tombs of Egypt, dating far back into antiquity, a clear recognition of inebriety was found. Herodotus wrote, four centuries before the Christian era, that drunkenness was both a disease of the body and mind. Other writers were noted who had urged this same idea, for centuries down to the present. By a strange shifting of events, insanity, which was supposed to be a spiritual affection until a comparatively recent date, is now studied as a physical disorder, while inebriety, which was mentioned as a disease twenty centuries ago, is still invested with the superstition of a spiritual origin.

Dr. Crothers said when inebriety is seen from a scientific point of view, it is found to be controlled by laws which vary according to certain physiological, psychological, and physical forces, of which heredity, environment, culture, nutrition, brain-and-nerve-vigor, are most prominent. When accurately recorded histories of many cases of inebriety are studied and compared, certain fixed ranges of causes appear, which follow some regular order of movement. These causes were summarized as follows:

1. Certain conditions of heredity, certain physical and psychical shocks and nerve-injuries are followed by inebriety in a large proportion of cases.
2. Certain structural changes of the brain and functional perversions, certain disturbances of nutrition and nerve-irritation, precede inebriety in many cases.
3. Certain unstable brain-organizations, regular, retarded, and defective brain-developments, etc., are apparent causes in many cases.
4. Certain diseases seem to have a special predisposition to develop into inebriety without any exciting causes.

These groups were discussed in detail.

In dipsomania and periodical inebriety a condition allied to epilepsy was mentioned. The explosions of the craze for drink were called nerve-storms, the regularity and uniformity of these periods were mentioned.

The uniformity of the symptoms of inebriety were described. Inebriety was affirmed to be increasing, and becoming more concealed every year. The coarser features were giving away to mania and suicide, etc.

The evidence of drink-cycles were described, and the temperance movements were affirmed to be reactions of the drink-cycles, and governed by laws and forces unknown.

In the treatment, work-house hospitals, conducted on a military basis, were urged, such hospitals to be built from the license fund and made like quarantine stations, where the patients could be controlled and placed in the best condition for recovery.

Different plans of treatment were mentioned in detail, and the profession urged to take up this subject and solve its problems along the line of accurately observed facts.

Professor George E. Stubbs, of Philadelphia, Pennsylvania, was reminded, by the paper, of what Professor O. W. Holmes once remarked: "That in order to treat some diseases, we needed to go back two hundred years." When we know that we are dealing with children from hereditary drunkards, we should properly advise about the bringing up of these children. He, too, had profound respect for church influences, but these children must abstain from alcoholic beverages if they are to be given the best chance of avoiding the unfortunate course of the parent.

Professor William F. Waugh, of Philadelphia, Pennsylvania, said: I believe in these remedies but for other reasons than that claimed. Inebriate asylums cure only to make the patients worse. On account of the fact that he has been kept idle, supported by kind friends, and having every attention given him, he becomes indolent and careless, desiring only to be pampered. The patients ought to be made to do physical labor. Too much is now attributed to mental influences; they also need attention given to the physical part of their being.

He had a case where a week before the attack of inebriety there would be an absence of bile in the passages.

Another case was presented to him where there was a red deposit in the urine preceding this attack. Appropriate remedies relieved these cases.

Dr. Cronyn, of Buffalo, New York, spoke of the Italian method of treatment, which consists

of giving the patient food steeped in wine until he gets a strong dislike to alcoholics. He claimed that this treatment seldom failed.

Dr. Crothers replied that these cases are practically insane. There is no one plan of treatment. Inebriety ought to be considered a disease as much as typhoid fever, and we are as capable of caring for it as any clergyman can be. They are emotionally diseased, and this conversion is a part of that disease. All these methods, such as moral influences, etc., are good, but such treatment is incomplete.

Dr. Ochterlony said that some of the greatest drunkards he ever knew had been clergymen, on account of which it seemed improbable that moral influences alone were sufficient for a cure.

Dr. Cisna, of Pennsylvania, then read a paper on

TYPHOID FEVER.

SECTION ON THERAPEUTICS AND MATERIA MEDICA.

WEDNESDAY, SEPTEMBER 7TH—THIRD DAY.

The first paper read was on

RHAMNUS PURSHIANUS.

Dr. John E. Brackett, of Washington, D. C., gave a botanical and chemical description of *rhamnus purshianus*, or *cascara segrada*. He considered the fluid extract, given twice daily in doses of five to fifteen minims, to be curative in chronic constipation, but the conditions favoring the occurrence of the constipation should also be corrected.

Dr. Murrell, of London, England, did not consider that the claims for special virtues in this drug had been well supported. He did not regard it as superior to the other varieties of *rhamnus*.

Dr. Phillips had obtained such results in chronic constipation that he had been much pleased with it. He had found in it points of superiority to both *senna* and *rhubarb*.

Professor F. Woodbury, of Philadelphia, Pennsylvania, said that in many cases of hæmorrhoids accompanying constipation he had found both conditions disappear simultaneously under the effects of *cascara*, especially in cases of women, who are liable to suffer with these disorders.

Dr. Ralph Stockman, of Edinburgh, Scotland, read a paper entitled

ON THE PHARMACOLOGY OF SOME BODIES DERIVED FROM MORPHINE.

The experiments were conducted jointly by D. B. Dott, F.R.S.E., and Ralph Stockman, M.D. The relationship between chemical constitution and physiological action must always be a subject of deep interest to pharmacologists. In this

short paper they proposed to mention briefly the changes in action resulting from various modifications in the constitution of morphine.

It was found by How, in 1854, that by acting on morphine with methyl iodide, a body was obtained which he named hydriodate of ethylmorphia, and which he regarded as a substitution product, the methyl iodide being supposed by him to replace one of the hydrogen atoms in morphine. In the light of our present chemical knowledge we regard How's body as an addition product, iodide of methyl (CH_3I) being simply tacked on to the morphine molecule.

In 1869, Crum Brown and Fraser investigated this body among others, and showed that the original action of morphine is quite lost and a curare action substituted in its stead. From their nomenclature there can be no doubt that these observers regarded such bodies as addition and not as substitution compounds. Notwithstanding this, we find that in all text-books and reference-books these substances are always named and described as if they were substitution and not addition bodies. It is at present generally held that the substitution of methyl for hydrogen in alkaloid causes the latter to act like curare, no matter what its original action may have been. The addition products, however, are very different in action from the substitution products.

The formula of morphine is $\text{C}_{17}\text{H}_{17}\text{NO}_2(\text{OH})_2$, and it contains, therefore, two molecules of hydroxyl. It is the hydroxyl-hydrogen atoms which are replaced most easily by alcohol radicals. With regard to the action of morphine, it may be divided into two stages—(1) narcosis succeeded by (2) tetanus. Methylmorphine, $\text{C}_{17}\text{H}_{18}(\text{CH}_3)\text{NO}_2$, is morphine in which one H has been replaced by CH_3 . Codeine has the same constitution, and this body is simply codeine prepared artificially from morphine. The action is exactly the same as that of codeine derived directly from opium.

Ethylmorphine, $\text{C}_{17}\text{H}_{18}(\text{C}_2\text{H}_5)\text{NO}_2$, has the same action exactly as methylmorphine.

Acetyl morphine, $\text{C}_{17}\text{H}_{15}(\text{C}_2\text{H}_3\text{O})\text{NO}_2$, and diacetylmorphine, $\text{C}_{17}\text{H}_{13}(\text{C}_2\text{H}_3\text{O})_2\text{NO}_2$, have a similar action to the two preceding bodies. That is, they produce narcosis in very small doses, which is followed by tetanus when larger doses are given. All these bodies are much more active than morphine, and smaller doses are required. In dogs, however, they produce much greater distress and much more marked vomiting and diarrhœa. From our examination of their action, we think that none of them are in a position to replace morphine clinically.

Dr. George S. Hull, of Pennsylvania, inquired

if the author could explain why the acetyl compound exerted such exaggerated effects as compared with the methylmorphine.

Dr. Stockman said that he could not explain this at present, but that he hoped to do so in the future, as these investigations are still in progress.

Dr. Murrell spoke of the usefulness of apomorphine as a prompt emetic. The rule laid down in the *British Pharmacopœia* to prepare the solution extemporaneously he regarded as puerile. The solution changes color, but retains its physiological effects for years. He had tried apocodeine, but had not been satisfied with the results and had gone back to apomorphine. In regard to codeine, he regarded it as less satisfactory than morphine and its employment in diabetes as merely due to fashion, and that the profession will eventually go back to morphine.

Dr. Stockman: Codeine is really the more poisonous of the two, although it is usually given in much larger doses than morphine is.

Dr. Brackett believed that codeine was less irritating to the stomach than morphine, and he was pleased with it in cough mixtures, in cases where morphine could not be given.

Dr. A. L. A. Toboldt, of Philadelphia, Pennsylvania, read a paper on

CARLSBAD MINERAL WATERS.

In cases of chronic hypochondriasis he obtained remarkable results from the use of the imported Carlsbad waters. The salts obtained by crystallization were less efficient, but the quellsalz or sprudel-salz powder, given in aerated or plain water, were found to be a good substitute. Mild cases of diabetes mellitus were entirely relieved. One case of obesity lost twenty-six pounds in less than four weeks under the use of the salt. The improvement in this case was permanent.

Dr. George S. Hull, of Chambersburg, Pennsylvania, read a paper on

SO CALLED ANTISEPTIC ACTION OF CALOMEL WHEN GIVEN IN LARGE DOSES.

In cases of dysentery most prompt results in relieving tormina and changing the character of the stools were manifested. It acts as a cholagogue, producing a free flow of bile, sweeping out the contents of the bowel, and as a mercurial it exerts an antiseptic action. In cholera its usefulness in large doses has been advocated by some and denied by others.

The relative value of large and small doses of calomel were freely discussed by the members of the section.

In closing the discussion Dr. Hull said that he was dealing with epidemic dysentery and not

with ordinary dysenteric conditions. The first effect of the calomel is to empty the bile-ducts and get a large flow of bile, and relieve the congestion of the liver and intestinal vessels. The second effect is due to the solution of the mercurial in bile, as pointed out by Headland, and this probably acts as an antiseptic in the bowels. The object is not simply to purge the patient, but to obtain a copious bilious discharge from the action on the liver. Where the tongue was most coated he got the best results. He believed that patients are killed by the use of opium and astringents.

SECTION ON ANATOMY.

THIRD DAY—MORNING SESSION.

Dr. Joseph N. Dickson, of Pittsburgh, Pennsylvania, then read a paper entitled

ANATOMICAL CONSIDERATIONS IN REGARD TO THE AMPUTATION AND DISARTICULATION AT THE ANKLE-JOINT, BY A NEW METHOD.

This method was first made public in 1875, and later in 1881. An incision should be made in advance of the line laid down by Syme, around the sole of the foot from malleolus to malleolus, and also an incision a little above the plane of the articular face of the tibia. The disarticulation was carried out by division of the ligaments of the ankle-joint, and the dissection was begun from above downward and backward, keeping the lateral section in advance of the posterior one. As the knife was carried backward and downward it included the periosteum and bursa between the tendo Achillis and the head of the os calcis. The advantages of this operation are a long plantar flap, shortening of the superior section, division of the malleoli obliquely, and, as stated above, preservation of the bursa between the tendo Achillis and the head of the os calcis. His methods of dressing were also simple. The oblique division of the malleoli allowed a better adaptation of an artificial foot and leg. Of fifty-two cases three deaths occurred, one or two of which were complicated by other injuries. The average stay in hospital was twenty-one days, and this included patients from four to sixty-five years of age.

AFTERNOON SESSION.

Dr. H. C. Boenning, of Philadelphia, Pennsylvania, read a paper regarding

DESTRUCTION OF THE DISSECTING-ROOM OFFAL, in which he spoke of the difficulties of disposing of the waste anatomical material. He enumerated the most usual way of getting rid of this offal by burial, storage, cremation, by alkalies, by

mincing it and throwing it in the sewers, by giving it to the buzzards, and by boxing it up and sending it away. He found great objections to all these methods on account of expense and trouble. He thought he had found the solution of this unpleasant problem by the use of the Gregory furnace, the principles of which were so simple and cost of construction so slight. He found that the small cost of fuel and the small amount of ash left, and the entire absence of foul gas, rendered it an indispensable accessory for every school of anatomy. The furnace was lined with asbestos upon the firebrick.

Dr. Boenning further reported a curious

ANATOMICAL ANOMALY.

In the subject, a colored female, aged thirty, was found an entire absence of the arch of the aorta. There were two vessels going from the left ventricle, the one up to supply the head, neck and upper extremities, and the other down to become the thoracic and abdominal aorta. In other respects the subject was normal.

SECTION ON OPHTHALMOLOGY.

THIRD DAY—MORNING SESSION.

Professor F. C. Hotz, of Chicago, Illinois, read a paper entitled

RESTORING THE NORMAL POSITION OF THE FREE TARSAL BORDER IN TRICHIASIS.

The essayist began by the introduction of a few anatomical facts bearing upon the subject. He showed that the free edge of the tarsal cartilage in the normal eyelid is placed at an angle of ninety degrees to the surface of the eyeball, and that the eyelashes are inserted at an angle of about ninety degrees to the free border of the cartilage. The angle made by the hairs with the free border may be considerably altered, as in blepharitis ciliaris, without the hairs touching the cornea or surface of the globe. But if the free border of the cartilage is turned inward by shortening of the conjunctival surface of the cartilage from shrinkage caused by inflammation, then it is easy to see how the hairs will sweep over the cornea. This may be remedied either by lengthening the posterior or shortening the anterior surface of the cartilage. It is not necessary, nor does it occur that the curve of the cartilage is changed. Lengthening the posterior surface is impracticable, but it is proposed to show how the position of the free edge can be restored by shortening the anterior surface. An incision is made just below the upper border of the tarsal cartilage, the lid being stretched downward by an assistant, and the skin and muscular tissue dissected off from the cartilage down to the roots of

the cilia. Then an incision is made directly back through the cartilage to the conjunctiva, met by another starting from a line about two millimetres above, and the wedge-shaped piece removed. A narrow ribbon of skin being now cut from the edge of the flap, it is replaced, and the sutures carried in through the edge of the flap, then through the upper border of the cartilage and out through the upper margin of the incision in the lid. The result of this procedure is apparent, the apposition of the edges of the wedge-shaped wound of the cartilage is good without sutures, and the normal appearance of the lid restored. To avoid cutting through the conjunctiva when making the incision through the cartilage the tactile sense of the finger placed on the inner side of the conjunctiva at the free border is sufficient, but a button-hole at this point does no harm, and does not affect the result of the healing.

Professor S. J. Jones, of Chicago, Illinois, said the difficulty of treating these cases of trichiases satisfactorily, and the importance of doing so, had been made manifest in the many different operations which had from time to time been devised for relief from the affection. Nearly all of them gave some temporary relief, but it is desirable to secure more lasting results.

In estimating the advantages to result from the operation as advocated by Professor Hotz, the risks to the integrity of the eye-lid from the extensive dissection must be considered, as well as the cosmetic effect after cicatrization.

From the statement made that the operation may be repeated with safety, two conclusions may naturally be drawn, viz.: That the primary operation may also be performed with safety, and that it is to be understood that it becomes necessary to repeat the operation. As to permanency of relief obtained by this operation, which is one of the most important considerations in connection with all the operations for the remedy of the affection, Professor Jones stated that several of the cases, which had previously been operated upon by Professor Hotz by this method, either as originally proposed or as modified by him recently, had subsequently been under Professor Jones' care, in which the relief at first obtained had not continued. These patients had been seen after intervals varying from a few months to a year or two. Either these must have been exceptional cases, or this mode of operating does not seem to afford results that are much more satisfactory than others obtained from the various methods of operating in the past.

Professor Frothingham, of Ann Arbor, Michigan, thought that Professor Hotz's operation will give better results than anything we now have.

The principal trouble will be in reducing the relaxation of tissue.

Dr. J. L. Thompson, of Indianapolis, Indiana, said that while country doctors could not muster as many cataracts as some of our foreign brethren, they had an abundance of this variety of trouble. He thought that no one operation would ever be found suitable for all these cases, and that procedure must be modified to suit circumstances.

Professor P. D. Keyser, of Philadelphia, Pennsylvania, had had considerable success by removing the entire cartilage.

The President said that Dr. Hotz had apparently dropped the idea of curving out the cartilage, and he wished to know the reason. The reply was that the idea of the incurvation of the cartilage had been found to be incorrect, and that therefore there was no need to alter the curve.

Dr. B. Pitts, of St. Joseph, Missouri, next read a paper on

THE BEST METHOD OF OPERATING FOR ENTROPION.

His paper was an exposition of the advantages of electrolysis, not only in removing the troublesome hairs which had assumed faulty position, but also in producing resolution and absorption of the thickened and infiltrated tissues, and in this way, even when relief was only partial, preparing the way for the easier performance of blepharoplastic operations.

Dr. W. F. Helcombe, of New York, N. Y., spoke of a method which he had put into practice, of placing the hairs in position, turned away from the cornea, and holding them in that position by silk surgeon's plaster. He had invariably had excellent results, and renewed the application from time to time, as required.

Dr. E. Landolt, of Paris, France, read a paper on

OPERATION FOR STRABISMUS.

He called attention to the marked peculiarities distinguishing this from all other operations on the eye, because it always concerns both eyes. Squint is always binocular. A man with one eye does not squint. Cyclops has no squint. Cataract and other operations may be done without taking into consideration the condition of the other eye, but not so with strabismus-operations. He dwelt upon the importance of the precautions to be taken for the success of the operation, and the causes of convergence and divergence. A most powerful aid in the correction of squint is the desire for binocular vision. Without binocular vision there is only an apparent cure, a cosmetic effect, because it leaves out the most powerful aid in the cure of strabismus. It is necessary before operation to determine the na-

ture and measure, the degree of the refraction and accommodation, to find how far vision has been lost, and to remedy it if possible. The agents for this purpose are atropia, glasses, cessation from work, and orthoptic exercises. He never operates without satisfying himself that he has got the full effect of non-surgical measures. If the correction is made in the child while young and without these precautions, divergence may occur later. The difficulty of determining beforehand just how much to do to get a certain effect was remarked, and that it was better to do too much than too little. It is easier to diminish than to increase the effect. Dr. Landolt never operates on two homonymous muscles at once. He rather does a tenotomy of one, and an advancement of its antagonist. The remedies for over-effect in operations for convergent squint are stoppage of atropia, removal of stitches from advanced muscle, and use of the other eye. No case should lose its power of convergence or divergence after the operation, as without that power binocular vision would be impossible. If divergence persist, advance the tenotomized muscle. This can easily be done to the tenth or twelfth day.

In divergent squint, on the other hand, the danger is in doing too much. If the divergence is of long standing and the eye amblyopic, then tenotomize with advancement, or do two tenotomies. Do not use atropine, but exercise the eye in the required direction. He often prefers advancement to tenotomy to remedy faulty position. It is more complicated but not more dangerous, and has a greater and more favorable effect than tenotomy. The operation for strabismus is not to be considered as a cure, but only as an adjunct to orthoptic treatment.

THIRD DAY—AFTERNOON SESSION.

Dr. George F. Stevens, of New York, N. Y. read a paper on

SOME IMPORTANT PROBLEMS RESPECTING INSUFFICIENCY OF THE OCULAR MUSCLES.

He said that anomalies of the ocular muscles were of as frequent occurrence as those of refraction and accommodation, while the literature of the subject was very scanty, and what existed would lead one to infer that only one of the muscles was liable to insufficiency—the internus—while the deviations in other directions had been ignored or barely mentioned.

The object of the paper was stated to be to suggest certain problems, rather than to explain apparent contradictions. For instance, a case showed with a prism over one eye, insufficiency of the externi of 8° at twenty feet, and at one

foot insufficiency of the interni of 10° . There was an adducting power of 50° . Now, there could not be an insufficiency of both interni and externi at the same time. Another case, with the prism eliminated from the question, had diplopia, homonymous of 4° at twenty feet, and crossed of 5° at two feet. Here seems to be a contradiction of results and a problem to explain.

Dr. Stevens then entered into an explanation of the terms which he used in designating the muscular variations. He uses Orthophoria to express the correct equable balance; Heterophoria to express any departure from it. He divides Heterophoria into Esophoria, a tending of the visual lines inward; Exophoria, a tending outward; and Hyperphoria, a tendency of one image to rise above the other. Latent heterophoria is as common as errors of refraction are, but is often overlooked, and is much more difficult to discover. In case hyperphoria exists, in what way are we to determine in which muscle the fault lies? Again, how shall we determine the absolute amount of anomaly and the best manner of procedure? Dr. Stevens then detailed his own mode of examination, always prescribing prisms of a degree somewhat less than the hyperphoria. He believed it was better to correct too little than too much. He does not believe that prisms are curative or permanently beneficial, but that they are of much use in diagnosis.

Professor J. F. Fulton, of St. Paul, Minnesota, in a paper, entitled the

ADVANTAGES OF EARLY OPERATION IN STRABISMUS,

spoke of the difficulty of overcoming diplopia or amblyopia where they exist after operation. He agreed with Soelberg Wells, that suppression of the image results in amblyopia from disuse, where the trouble occurs in children, and even in cases where the difficulty is of a later date. He favors operating in children at an early date. If operation is not admissible, then the other eye should be covered, and the squinting eye exercised carefully at short intervals. Amblyopia met with in strabismus is either primary or secondary. If primary and congenital nothing can be done, but he thought many cases were secondary and due to the same cause as the squint. The vision of the defective eye sometimes rapidly deteriorates when the image is suppressed. A case in point was one where V. = $\frac{1}{100}$ in the right eye, and $\frac{1}{100}$ in the left, raised to normal by a suitable glass. Some time after the fixing eye was lost by accident, when the left eye was found to have only $\frac{1}{100}$. This was raised, after use for some time, to $\frac{1}{100}$. Other cases were quoted, of two members of the same family,

one of whom was operated on, with the result of improving the vision from $\frac{1}{100}$ to $\frac{1}{100}$, while in the other, which was let alone, the degree of strabismus remained stationary, but the amblyopia increased.

Dr. C. H. Abadie, of Paris, France, read a paper on

FAULTY EYE MOVEMENTS AND THE MEANS OF REMEDYING THEM.

He reviewed the modes of diagnosis, particularly in relation to the differentiation between those cases that require complete and partial tenotomy, and dwelt on the ability to control the amount of correction by removing more or less of the muscular fibers. It is easy to change a partial tenotomy into a complete one, if it be necessary.

Dr. E. O. Shakespeare, of Philadelphia, Pennsylvania, read a paper entitled

ON THE STRENGTH OF THE SUPERIOR RECTI MUSCLES AS A CAUSE OF ASTHENOPIA.

He found many cases of asthenopia not relieved by correction of the refraction, and external and internal recti in which there was want of proper action of the superior or inferior recti. In testing, we may find that the displacement of the image is greater when a prism is placed over one eye than when over the other. If a correcting prism be used it will be found that one superior rectus is stronger than the other. To correct the muscular error, if there is an error of refraction, he decenters the lenses, and if no refractive error is present, then he puts on prisms.

Dr. Landolt, of Paris, France, gave a demonstration of his method of strabometry, and showed how easily the patient and tapes were placed in position and the accuracy of the result. The tapes are made by Dubois, rue Monsieur le Prince, Paris, France.

Dr. H. Power, of London, England, after stating that it was not so long since the operation was done, like dividing a tendon in orthopedy, said that he is not now so certain as formerly of a positive cure. A great deal of care is now taken of the cases before operating, and even with it all, we will have cases that appear to be just as bad after operation as before.

Dr. Shakespeare rose to ask about the successive removal of muscular fibers by Dr. Abadie in small degrees of insufficiency. He wished to ascertain something of the permanency of the relief afforded.

Dr. Landolt, in replying in the absence of Dr. Abadie, said that he could not answer that question, as he had never done that operation, and probably never would do it. He always divided the whole tendon. He believed that Dr. Abadie claimed a very good and durable effect.

Dr. G. S. Norton, of New York, N. Y., asked if Dr. Stevens would tell what was the matter where both external and internal insufficiency appeared to exist, without hyperphoria. The doctor replied that that was just one of the problems he had submitted to the section, and that he did not know.

Dr. J. A. White, of Richmond, Virginia, spoke of the great value of Dr. Landolt's paper, and added a few remarks on his own results in advancement of the capsule, with which he had obtained as good results in cases of considerable degree as by advancement of the muscle.

Dr. Thompson, of Indianapolis, Indiana, was afraid that after all a large proportion of cases return to their original condition.

The president submitted a question as to the time for operation.

Professor D. S. Reynolds, of Louisville, Kentucky, suggests the exercise of the retina with strong lenses, even where considerable amblyopia exists, with the hope of improving vision before operating.

Dr. B. J. Baldwin, of Montgomery, Alabama, is satisfied that there are many cases in which amblyopia may be prevented by an early operation. A year or two ago he believed that amblyopia was congenital, but he does so no longer.

Dr. Landolt, in closing, thanked the section for their kindness and indulgence, and expressed his pleasure at the free discussion which had been drawn out.

Dr. A. G. Heyl, of Philadelphia, Pennsylvania, then addressed the section on

ABNORMALITIES OF THE VISUAL AXIS.

He said that the definition of the visual axis is involved in obscurity, and is as well a matter of extreme importance. He reviewed the terms and definitions at present used, showing their incorrectness, as *Gesichtslinie*, *Blicklinie*, and their mechanical and not physiological basis. Collimating axis is better, but it belongs essentially to monocular vision, in which one eye dominates over the other.

His true definition is a line from the macula, directed directly in front when the eye muscles are in a state of rest or equilibrium. It is a conception low down in consciousness, as is the conception of the median plane.

Through the pull of the tendons on the sclera, the recti muscles keep the macula pointing straight ahead. He then entered into the subject of the origin of the macula—whether from the foetal cleft, which would call for a rotation of at least ninety degrees, which is said to have been observed. Then he says: "My position, for want of a better, is that the pull of the recti, antagonized by the ciliary muscle, is the factor in the production of the macula."

Dr. Ole Bull, of Christiania, Sweden, wished to know how Dr. Heyl accounted for the existing of two maculae in some birds with restricted vision.

Dr. Heyl, in closing, in answer to Dr. Bull, stated that he knew that those cases existed, but that he would have to examine the arrangement of the muscles before being ready to explain it. He thought the same process of tension might take place in two different directions.

SECTION ON 'OTOLOGY.

THIRD DAY.

Dr. R. Tilley, of Chicago, Illinois, read a paper on

INHERITED SYPHILIS AS A FACTOR IN SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR.

He expressed surprise at the marked absence of reference to this subject in general syphilography and otological literature. Politzer, in his text-book, makes no allusion whatever to inherited syphilis as a possible cause of suppurative inflammation of the middle ear. Dr. Albert H. Buck does not even mention, under this head, inherited syphilis in his book on "Diagnosis and Treatment of Ear Diseases." Keyes, Woods' library edition, refers to a middle-ear affection from primary syphilis, but makes no reference to middle-ear affections from the inherited affection. Dr. St. John Roosa does not refer to it. Dr. Thomas Barr, in an indefinite way, says: "As in nearly all the diseases of the ear hereditary tendency plays an important part in the causation." There is, however, no specification as to the character of the hereditary tendency. Diday says: "Cases of suppurative otitis are also seen associated with this type of disease, but it is open to some doubt if it is dependent directly on syphilis." Sturgis, in his American edition, says: "The lesions of the ear are even yet but little understood, and are nearly all confined to deafness which comes on suddenly and are frequently unaffected by treatment." Sir W. B. Dalby ignores the influence of inherited syphilis in middle-ear affections. In Ziemssen's *Cyclopaedia*, however, occurs the following: "This is the starting point of catarrh of the tympanum, and a frequent source of deafness and tinnitus aurum. . . . These conditions are especially apt to occur in consequence of inherited syphilis."

A general comparison was made with the cornea and the membrana tympani, and special attention drawn to the universally recognized relation of inherited syphilis and interstitial kera-

titis, and the claim made on theoretical grounds that the tissues of the membrana tympani might be expected to suffer correspondingly with the cornea.

A comparison was also made with mucous membrane of the nose and that of the middle ear; and the peculiar symptoms given by Trousseau as characteristic of inherited syphilis, as it manifests itself in the mucous membrane of the nose, were supposed to find their counterpart in the ear.

Reference was made to the relative mildness of the secondary and tertiary manifestations of syphilis, and it was supposed that suppurative discharge from the middle ear should be less frequent in the negro if the influence of hereditary syphilis played an important part in the white races.

The practical observation of the author could furnish cases, but the reports were not given on the supposition that the question being fairly presented to the profession, nothing but their own observation could produce the conviction necessary for daily practice.

The author concluded by stating that his general practice in determining the presumptive course of a case of suppurative inflammation of the middle ear is to cleanse thoroughly the affected organ and note the appearance of the tissues, to inspect the nasal and pharyngeal spaces, the teeth, the scalp, the cervical glands, and if the cervical glands are enlarged, the teeth irregular and decayed; if the features are puny and shriveled, the hair thin and dry, pustules in the scalp, hypersecretion with swollen mucous membrane in the nose and a special predisposition to disturbance of the alimentary canal, if he does not conclude that the patient is the subject of inherited syphilis, he does conclude that he will thrive better, and the suppurative middle ear will heal more effectually by the use of what are known as anti-syphilitic remedies.

A paper was read by Dr. J. Baratoux, of Paris, France, on

CHANGES IN THE INTERNAL EAR IN HEREDITARY SYPHILIS.

During the last few years much attention has been paid to the changes developed in the internal ear in syphilis. It has thus been recognized that the walls of the vestibule, the semicircular canals, the lamina spiralis, and the cochlea may be affected with periostitis; that the soft parts of the labyrinth become implicated with round cells; that the auditory nerve has been greatly modified in structure, and finally, that the membranes of the internal ear have been injected and bathed in a sero-sanguinolent fluid which had taken the place of the lymph. He said, I have myself, in a

work on syphilis of the ear, called attention to the inflammation of the vascular loops of the external walls of the canal of Corti on a level with the spiral angle and of those which run along the vascular membrane. I have also demonstrated on several preparations a dilatation and even a rupture of the walls of the vessels.

But among the new-born, afflicted with hereditary syphilis, the changes in the internal ear have been but little studied. As a fact Hutchinson attributes the associated deafness in such cases to a lesion of nervous origin. Lancereaux and St. John Roosa hold the same opinion. Wreden refers the lesion to a gumous degeneration of the auditory nerve. Hinton, however, demonstrated congestion of the vestibule.

In a series of autopsies, partly made at the Hospice des Enfants-arnistes, and partly in the obstetric department of the Hospital Cochin and St. Louis in Paris, I have found on different occasions that the internal ear was the seat of important primitive lesions, or arising secondary from lesions of the middle ear.

Among the numerous autopsies which I have made I present only the report of forty-three cases. All these forty-three cases were affected with hereditary syphilis, demonstrated either by lesions on different parts of the body, or by lesions on the parents, which lesions had manifested themselves in the year previous to the birth of the child.

Thus there was demonstrated twenty-seven true lesions of the middle ear, four times lesions of the labyrinth, and twelve times lesions of both parts.

The object of the communication is to call attention to the changes in the internal ear.

When the internal ear was affected simultaneously with the middle ear, without pus being found in the labyrinth, the walls of the ampullæ and cochlea were reddened; the axis of the cochlea injected and infiltrated with round cells, and the parts bathed in a sero-sanguinolent fluid which had taken the place of the lymph. When the internal ear alone was affected, the blood vessels were found to be dilated, the walls thickened, and in some instances hæmorrhagic spots were found. Demonstrations of these conditions were made to the physicians associated with the hospitals whence the cases were taken.

DISCUSSION.

Professor G. E. Frothingham, of Ann Arbor, Michigan, thinks the papers of Drs. Tilley and Baratoux are valuable productions, since they deal with a subject hardly if at all, discussed in the works on aural affections. To cite his own custom, for example, inquiry as to hereditary

syphilis in ear diseases did not receive the attention it deserves from otologists. While acquired syphilis is duly considered, the pains of investigating the possible influence of hereditary syphilis in the etiology and progress of certain aural affections, are seldom taken. Of course, when other well-marked symptoms of inherited taint are present, they are generally weighed, and the case is treated on the general principle that any constitutional disease should be cured, if possible, as a means of combating any local expression. It is not his custom, however, to attempt any special inquiry in this direction, and he does not think many others do. He readily conceives that inherited taint might give no other manifestation than, perhaps, general debility, which might be attributed to other causes. Happily, the custom of giving tonics, and alternatives as well, in the treatment of aural affections, compensated, somewhat, for this neglect, since cod-liver oil and the iodides, administered for other reasons, answered the best purpose in such inherited disease when conjoined with proper out-door exercise, bathing, cutaneous friction, and nutritious food—elements which entered into the therapeutics of most such cases. Dr. Baratoux is entitled to the thanks of the profession for his careful researches in this field; and Dr. Tilley, as well, for calling attention to the subject. He thinks it will be wise to give heed to the facts they have presented, and to remember them in examinations and the treatment of ear affections.

SECTION ON DERMATOLOGY AND SYPHILOGRAPHY.

THIRD DAY.

LUPUS ERYTHEMATOSUS.

The session opened with a paper on the above subject by Dr. A. Ravogli, of Cincinnati, Ohio. In his opening remarks the author said that he would always prefer to treat lupus vulgaris than lupus erythematosus, so difficult was it to obtain satisfactory results. Kaposi had regarded the condition as a neoplasm. Hebra first described it as a seborrhœa, but modified the term by adding to it *congestiva*. All authors mention erythema and congestion as important features. Specimens were exhibited, which showed enlargement of the epithelial cells and hypertrophy of the papillæ in the stroma of the corium, and an infiltration of inflammatory cells in the meshes of the tissues, and some cells are seen between the fibers of connective tissue surrounding the hair-follicles. There is an increase in the number of connective-tissue corpuscles. The elastic fibers are swollen and enlarged, and the loculi, formed

by the fibers of connective tissue, contain fluid. The blood-vessels are filled with blood. The condition is then one, not of neoplasm, but is an inflammatory process. Each layer of the skin is affected. After a patch of lupus erythematosus has disappeared there is left a thin, white, parchment-like condition of the skin resembling a scar.

There is a true atrophy of the skin, caused by pressure producing obliteration of the glands which first take part in the hypertrophy. The process is then first an hypertrophy of the histological elements, followed by an atrophy.

The cause of the atrophy is found in the blood-vessels being closed and obliterated by pressure. The primary cause consists in an irritation and stimulation of the nerves, which increases the blood-supply and causes a disturbance in the biological activity of the cells.

The author has examined scales from three cases of lupus erythematosus. The epidermic cells were found enormously enlarged, and contained a large number of round bodies which he regarded as micrococci. They formed groups and colonies, and chemical tests appeared to confirm the opinion that they were such.

Sections of the skin were made and showed the existence of the cocci in the papillary layer, most abundant where exudation has taken place, and small colonies in the interior of the fibers and in the capillary blood-vessels.

These bodies answered to the test laid down by Friedländer for micro-organisms, and Dr. Ravogli does not doubt that micro-organisms exist in lupus erythematosus, not only upon the surface, but also within the structure of the skin. He has been unable to make any culture experiments. He regards these organisms as the cause of the disease, and instead of classing it as a neoplasm, thinks it should find its place among the infectious diseases.

The inflammatory symptoms and hypertrophy are explained by the irritation of the micrococci. The function of the sebaceous glands is increased by the irritation, hence the seborrhœa and the formation of the greasy scales. This explains lupus erythematosus discroides; in the form called *aggregatus* the micrococci still better explain the condition.

As regards treatment, internal remedies are useless, as a rule. The application of emplastrum hydrargyrum has been considered the best treatment. The benefit of this powerful microbe destroyer strengthens the theory. When the skin is destroyed with caustics we succeed in destroying the cocci. When the sharp spoon was used to scrape the patches, or they were burned, the dis-

case often returned in the neighborhood of the patch. Dr. Ravogli has obtained complete recovery in three cases of the disease by the use of ichthyol. Diminution in the secretion of the sebaceous glands is soon noticed. The reducing action of this agent is displayed on the underlying tissues. Ung. diachyl. hebræ goes well with ichthyol (ten per cent.), producing elevation of the epidermis and suppuration. The ichthyol is diminished to three per centum, and only slight scars result. He finishes treatment with ichthyol in collodion. Dr. Ravogli showed microscopic specimens to illustrate the pathological changes and the bodies which he regarded as cocci.

In the discussion, Dr. Knaggs, of England, asked if the reader considered the micrococci as causative, and whether the ichthyol destroyed them and the tissues, too, or acted as an antiseptic.

Dr. Ravogli replied in the affirmative. The ichthyol acted, he thought, by abstracting oxygen, upon which the life of the cocci depended.

Dr. Unna, of Hamburg, Germany, regarded the most important part of the paper that relating to micro-organisms, and he considered it the weak point as well. The cocci must be seen in all parts of the thickness of the skin, and, he believed, in the sweat-glands, too. He thought micro-organisms probably existed in the disease, and would some day be discovered, but he could not regard the specimens presented as showing them, and hoped Dr. Ravogli would continue his investigations and make cultures. He asked if the sections were made deep enough to show the sweat-glands.

Dr. Ravogli said he had not paid special attention to these glands.

Dr. Unna was glad to hear of the good influence of ichthyol, never having used it alone in this disease, but with the addition of salicylic acid. He has found resorcin beneficial and most useful as a varnish or collodion dressing.

Dr. Thin, of London, England, said that the refractive particles seen under the microscope might be micro-organisms, and might be other bodies. More characteristic stainings would be necessary and sections carried into the deeper parts, showing the same bodies before they could be regarded as micro-organisms. Furthermore, cultures and inoculations would be necessary to prove the case. Dr. Thin spoke of several rare cases he had recently seen in England, which, from their peculiar appearance, had been given the name of the cock's-comb disease, as similar cases had not been observed there. The feature of the affection was a raised, bright-red, uneven surface, with abrupt margins. He had examined specimens of the tissue, and had found it identi-

cal with that of lupus erythematosus. There was a greater degree of vascularity than usual, the epidermis was raised, and a dense mass of small cells was found between the rete mucosum and strata lucidum. The affection was found very unsatisfactory as regarded treatment. He related one case of lupus erythematosus in which an inexplicable spontaneous cure had taken place while the patient was upon an exclusive milk diet prescribed for another disease. He believed in a micro-organism, but thought it had not yet been found.

Dr. Klotz was glad to hear Dr. Ravogli say he avoided stronger and caustic remedies. He preferred salicylic acid combined with soap-plaster. He thought the discovery of micro-organisms would bring lupus erythematosus into closer relationship with lupus vulgaris, from which it had been too far alienated.

Dr. J. Zelsler, of Chicago, Illinois, thought the micro-organism theory a very plausible one; still, it was only a theory. To prove them it would be necessary to make cultures and inoculations. He did not regard the studies in this direction as entirely new, as Morrison, of Baltimore, had made similar investigations. Lupus erythematosus of the mucous membrane is an extremely rare condition. He had observed it in Vienna, in a case in which the mucous membrane of the mouth was affected. It presented a whitish condition of the membrane, the tissues were hardened, and it proved very obstinate under treatment. Caustic nitrate of silver was alone found to influence the condition. He agreed with Dr. Unna as to the value of resorcin, and that ichthyol had little effect. A ten per centum solution of resorcin in collodion had acted well.

Professor Robinson, the president, spoke especially in regard to the microscopic specimens. He agreed with Thin and Unna that in all probability a micro-organism exists, but he does not think that Dr. Ravogli has pursued proper methods, nor do the specimens show the bodies to be cocci. It is not clear that they are not extraneous matter. We must exercise great care in placing importance upon micro-organisms found upon the surface. He urged Dr. Ravogli to follow up his investigations and thought something might come of it.

In closing, Dr. Ravogli said that he labored under difficulties in making his demonstrations at this time. He considered the test with caustic potash a convincing one, as it never attacked micro-organisms, but did attack everything else. He was glad to hear the opinions of so many that micro-organisms probably existed. He would not say positively at the present time that they

were causative, but would wait until he had been able to make cultures, etc., as suggested.

A paper on

ERYTHEMATOUS LUPUS OF THE HANDS, was read by Dr. Ohmann-Dumesnil, of St. Louis, Missouri, in which he says, few cases of erythematous lupus of the hands have been observed or accurately described. Existing upon the hands alone the disease is extremely rare. Treatment is sought usually on account of the appearance. He related the history of a case in which the lesions appeared upon the hands alone, had existed for a long time, and had been treated by caustic applications without much benefit. He employed concentrated lactic acid in the form of a paste, which produced severe pain, and was followed by a slough; pyrogallie acid was alone used, but the case passed from observation before a cure was effected. The author has collected forty-five cases. In twelve the disease began in the face, the hands being subsequently affected. The lesions do not extend beyond the nails and the dorsal surface is the seat of predilection. The patients were usually in good health. Dr. Dumesnil had endeavored to find cocci in the scales and sections of lupus erythematosus, but had not been successful. There is at first an inflammation of the epithelial layer, which subsequently dips down into the hair follicles, following and affecting the epithelial structures, and only extends to the dermic structures by contact.

A paper entitled

A CONTRIBUTION TO THE KNOWLEDGE OF IMPETIGO HERPETIFORMIS (HEBRA).

was presented by Dr. Josef Zelsler, of Chicago, Illinois. He first gave a short historical review of the literature of the subject, and paid especial attention to the work of Duhring, who, as he thought, went too far in including a disease like impetigo herpetiformis, so sharply characterized by its clinical course, the unmistakable efflorescences, the almost exclusive occurrence in women, in connection with the puerperium, the fatal end, etc, with other diseases under one name, that are so entirely different and mostly of a benign character. He referred to a recent paper of Kaposi, who, in describing the disease, again warns against confusion in studying a question which needs so very much to be cleared up. The author then furnished an exhaustive description of a case of this rather rare affection.

In the discussion which followed, Dr. Unna related a case which resembled both impetigo herpetiformis and dermatitis herpetiformis, but differed from both and was probably neither. It

was similar, as regarded treatment, in that iodine in abundance was the only treatment which gave good results.

It resembled more an impetigo, because the blebs appearing did not from the first contain pus, as is necessary to establish the diagnosis.

SECTION ON CLIMATOLOGY AND DEMOGRAPHY.

THIRD DAY.

Dr. A. Tucker Wise, of Engadine, Switzerland, presented a paper on

THE CLIMATE OF THE SWISS ALPS, WITH PULMONARY CASES TREATED AT AN ALTITUDE OF SIX THOUSAND FEET.

The marked peculiarities of Alpine winter climate may be enumerated as, dryness of the air and freedom from micro-organisms, mechanical irritants, and noxious gases, low temperature, plenty of sunlight, low pressure, and ozoniferous atmosphere. The results of these peculiarities upon pulmonary complaints may be stated thus:

1. By breathing aseptic air free from dust, irritation, or, perhaps, recurrence of infection by microbes in the respiratory tract is greatly lessened.

2. Vaporization of morbid secretions in the lungs takes place, promoted by reduced barometric pressure and dryness.

3. Increased oxidation of blood and tissue from sunlight, cold air, and reduced pressure.

4. Increased quantity of blood circulating in the lungs, the freedom of the circulation being aided by extended chest movements.

5. Increased activity in the pulmonary lymphatics, and a general improvement in nutrition and glandular secretion; also an exhilarating effect upon the nervous system.

The four principal health resorts of the Grisons, in Switzerland, are Maloja, Wiesen, Davos, and St. Moritz. The climates of these resorts are stimulating and tonic.

Twenty-three cases are related, showing great improvement during a residence of from one to sixteen months.

A paper by Dr. John D. McDonald, F.R.S., Inspector General Royal Navy of Great Britain, on

GROUND-AIR IN ITS HYGIENIC RELATIONS, pointed out the importance of the study of the atmosphere of the soil, but contained no especially new points of view.

Dr. P. H. Boyce, of Toronto, Canada, Secretary of the Provincial Board of Health of Ontario, read a paper upon

HOUSE ATMOSPHERES, OR ARTIFICIAL CLIMATES.

The points considered were the constituents of house atmospheres, their temperature and humidity, and air currents; the effects of house atmospheres on populations, and remedies for existing evils connected with house atmospheres.

With reference to the constituents of house atmospheres, the observations of Miquel, Koch, Aitken, and Tyndall upon indoor and outdoor air were quoted. Considerable attention was given to temperature and humidity in connection with house air.

The remedies for the evils mentioned are sunlight in abundance, greater care in the construction of dwellings, foundations, and plumbing appliances, improved municipal sanitation, and the attainment of equable heating and thorough ventilation. In conclusion, it must be recognized, regarding the fatal effects of the imperfect conditions of human life under which Indians, negroes, and many of the people of limited means exist, demand the earnest consideration of all workers in the field of climatology and demography; and since the occupations, urban residence, and limited means make it impossible for an increasing proportion of our population to enjoy the health-giving influences of rural residence and the stimulating effects of life by the ever-restless ocean, or upon the mountain side, we shall best conceive the duties assigned to us, of making it possible for every willing citizen to so live under his own roof as to maintain a vigor unimpaired for the discharge of the work lying nearest him, and to transmit to the race that is to be a legacy of physical health.

SECTION ON DENTAL AND ORAL SURGERY.

THIRD DAY—MORNING SESSION.

Dr. Pradère, of Lyons, France, read a paper on
PHTHISIS CURED BY THE CONTINUOUS APPLICATION OF MEDICINE TO THE PALATE.

Immediately after the paper was read, Dr. James Trueman, of Philadelphia, Pennsylvania, moved that it should not be accepted by the section, but should be referred, without discussion, to Section I., in General Medicine.

A number of gentlemen gave clinics in the treatment of diseased conditions of the oral cavities, and others demonstrated their methods of filling teeth and constructing artificial dentures for patients. These clinics are spoken of as a successful feature of this section.

Dr. Metnitz, of Vienna, Austria, read a paper on
OSTEOMYELITIS.
which consisted chiefly of a report of two cases from practice.

The history of the first case was as follows: In October, 1886, a lady, aged forty-three, had two teeth extracted. A few days later she suffered with chills, which were followed by slight mental disturbances. The seventh day the patient became unconscious, in which condition she was brought to the hospital. Examination revealed that there was a large swelling over the left cheek, extending to the temporal region; the skin covering this swelling was tense and pale in color; the sclerotic was highly colored (yellow), and the skin showed yellow tinge; the pupils were without reaction. The odor of the breath gave evidence of necrosis. The submaxillary glands were very much enlarged, and the neighboring tissues infiltrated. There was unconscious urination and defecation. Death occurred the following day. The post-mortem examination showed the membranes of the brain to be thickened and traversed by numerous vessels. The left hemisphere was covered by a layer of pus, and the right hemisphere showed considerable pus along the track of the vessels as well as several pus-depots. The brain-substance was quite soft. The examination of the oral cavity disclosed that of the two teeth extracted the upper alveolus had almost entirely filled up with healthy granulations, whereas the lower was filled with pus. The mucous membrane in the region of this diseased alveolus was very much discolored and could easily be removed in pieces. The probe discovered nothing but dead bone. All the muscles of the neck which are attached to the left side of the lower jaw were infiltrated with pus. The periosteum was separated from the left side of body and ramus of the jaw. The alveolus of the extracted wisdom-tooth communicated by two good-sized openings with the marrow-cavity, and the marrow itself was discolored and infiltrated with fat. The cause of this extensive destructive action is no doubt to be looked for in the unclean condition of the alveolus after the extraction. Sections of the jaw show that the medullary canal was very much enlarged.

Kocher, Rosenbach, and Busch, in experimenting on animals, have found that it is impossible to produce an acute pus-forming osteomyelitis either through traumatic injury or chemical and mechanical irritation, but that such a condition can readily be brought about by infecting the fresh wound in the bone by any decaying substance.

The second case was one of multiple osteomyelitis. The patient, male, aged seventeen, suffered from an attack of osteomyelitis of the humerus, the ulna, and the lower jaw. According to Billroth, it is not settled whether this condition (multiple osteomyelitis) is due to septic in-

fluences acting on various places at the same time, or whether the infection dates from one point.

Death in this case, as in the first, was directly due to acute suppurative meningitis. When we have to deal with a simple inflammation, energetic antiseptic treatment will prove quite sufficient. In severer cases of osteomyelitis Billroth advises that the seat of disease be reached as soon as possible—the pus evacuated, the cavity thoroughly disinfected, and dressed with antiseptic dressing. Many cases present no actual deposits of pus, or abscesses, but simply an infiltration of the marrow. In such cases Billroth holds it of little value to open into the medullary canal. Neither does he advocate disarticulation or resection, because, in the first place, the exact extent of the disease cannot be foretold, and, secondly, the medullary substance of a patient suffering from osteomyelitis is in such a susceptible condition that a new injury would almost certainly prove fatal.

Dr. Jenison, of Minneapolis, Minnesota, read a paper on

ART IN DENTISTRY.

The essayist advocated the restoration in gold of all teeth that had been destroyed by caries, thereby improving both their usefulness and beauty.

In constructing artificial dentures more time should be given to the restoration of the features of the patient, and for that purpose single and not section teeth should be used.

THIRD DAY—AFTERNOON SESSION.

Dr. R. R. Andrews, of Cambridge, Massachusetts, read a paper on

THE ORIGIN OF THE DENTAL FIBRIL, ILLUSTRATED BY AID OF STEREOPTICON.

Dr. Andrews described his process of preparing and mounting the specimens for the microscope, which differed in no essential respect from the latest methods employed by others for that purpose.

In speaking of the formation of the fibrils, the essayist says there are two kinds of odontoblasts—those which are square toward the dentine, and others, just by the sides of the first mentioned, which are pear-shaped. From these latter, and not from the first (or square end ones), originate the dental fibril.

The stereopticon views presented showed very clearly with what patience, earnestness and intelligence the essayist worked to establish his view of the question.

Dr. Frank Abbott, of New York, N. Y., in

opening the discussion, paid a high tribute to the reader of the paper for the hard work done in behalf of his specialty. In order to understand the process by which the dental fibril is produced, it is necessary for us to consider the matter from the third to the fifth month of intra-uterine life, at which period of the existence of the fetus the papilla of teeth are so far developed that a material change is observed to be taking place. The papilla is a mass of myxomatous tissue, liberally supplied with medullary elements. In some instances at three months, at others as late as the fifth of intra-uterine life, a coalescing of several of the medullary corpuscles into one may be observed upon the periphery of the papilla adjacent to the enamel organ, which at this period may be observed forming a cap upon the papilla. The united medullary corpuscles are known as odontoblasts. The impression has generally prevailed among histologists and embryologists, that the odontoblasts were directly formed into dentine. This theory, through recent researches, has been proven to be incorrect. The odontoblasts, when viewed with a power of 1,200, show a delicate reticulum, which unites the nuclei with the walls of each corpuscle and with each other. This reticulum, as well as the walls of the odontoblasts, are the living matter which remains as the living portion of the dentine. Before the beginning of the deposition of lime salts, the odontoblasts are reconverted into medullary substance. As such they receive the calcareous basis-substance, and thus a certain territory of the papilla becomes dentine. While this process of calcification is going on, another row of odontoblasts makes its appearance, from the sides and ends of which prolongations of the living matter may be seen running into the canaliculi of the dentine already formed. A spindle or pear-shaped odontoblast, gives off one, while those with broad ends give off two, three, and even five prolongations. If the views advanced in the paper were correct, it would necessarily follow that territories of considerable size would be left in the dentine with no canaliculi whatever; nor is there any provision for furnishing these territories with any living tissue.

Dr. Fletcher, of Cincinnati, Ohio, read a paper on

PROTECTIVE DENTINE; ILLUSTRATED BY STEREOPTICON.

This paper, from its practical aspect, was of special interest to the section. The slides which were thrown on the screen showed the different kinds of protective dentine, and the essayist gave his views of how these different efforts

on the part of nature to protect herself are brought about.

Dr. W. X. Suttuth, of Philadelphia, Pennsylvania, agreed with the essayist in the practical conclusions drawn; he supplemented the reader's remarks by stating that the odontoblasts remain after the development of the dentine, but can be stimulated to produce or perform their function of forming protective dentine.

Dr. J. Howard Mummery, of London, England, exhibited

PHOTO-MICROGRAPHS OF ALL THE STRUCTURES OF THE TOOTH,

and explained the best method of producing them.

SECTION ON GYNÆCOLOGY.

THIRD DAY—MORNING SESSION.

Dr. Ernest W. Cushing, of Boston, Massachusetts, read a paper entitled

CANCEROUS DEGENERATION OF THE HYPERPLASTIC GLANDS OF THE CERVIX UTERI.

Ruge and Veit have described a condition of the glands which they considered to be in itself the nature of a cancer—a transition from innocent to malignant formation. This seems to me much less clearly demonstrable than the views which they maintain concerning erosion.

Briefly, they attribute the greater import to a certain filling up of the lamina of the glands with epithelial cells, either columnar or flat. The theory of Veit and Ruge agrees so thoroughly with Theirsch and Waldeyer and their followers that it has been very widely accepted, and a plate showing the transition is shown in Dr. A. Martin's "Gynæcology." It is possible that greater importance has been attached to this condition of glands than has been warranted.

The question is of practical importance in regard to the microscopical diagnosis of suspicious affection of the cervix, for as it is admitted that the diagnosis cannot be made securely by the unaided eye nor by the touch, and as vaginal hysterectomy is now advocated, and, at any rate, free amputation of the portio vaginalis is indicated in all cases of undoubted cancer, even in an incipient stage, a great responsibility attaches to the microscopic examination.

In the first place, as Ruge and Veit expressly declare, in their majority of cases the carcinoma did not originate in the new-formed gland, but infiltrated the cervix as a "carcino-sarcoma," an aggregation of small cells lying in masses in alveoli of connective tissue. In such cases there was no evident connection with the epithelium of the surface with the glands.

In four out of twenty-two beginning cancers of the cervix, however, they found appearances of solidification of the glands and filling up with epithelium, which they describe and figure as a transitional stage in the development of the adjacent cancer. With much diffidence I venture to suggest that my studies of the changes in question have led me to different conclusions from these observers.

THE PLATES OF RUGE AND VEIT.

are not conclusive on this point.

Even when a whole series of glands lying adjacent to each other show occluded lumina on section, I cannot feel that the diagnosis of carcinoma is justified, but only that of adenoma. It may become destructive, but is not carcinomatous until changes occur in the connective tissue between the glands, when the boundaries of the glands are broken through by the growing cells.

Even when the new glands are thus involved manifestly in the carcinomatous growth, it has seemed to me they are invaded from without by the growth of cells in the surrounding tissue.

I have found no evidence that after filling up the lumen of a gland the proliferating columnar epithelium changes to the flat variety, and, breaking through the boundary of the gland, invades the surrounding tissue.

Moreover, in attributing so much importance to the fact that they found the lumina of some of the new glands occluded, Ruge and Veit have not noticed the explanation that precisely these solid acini or branches may be the first stage of their existence previous to the formation of the lumen.

Such a mode of growth is seen in the formation of new glands in the walls of a multilocular cystoma of the ovary. These little solid sprouts, lined with columnar epithelium, afterward become hollow and then dilate, forming cysts.

A similar mode of growth is seen in the female breast when rapidly enlarging, preparatory to the secretion of milk.

Where the microscope shows glandular degeneration, the surface bare of epithelium, the tissues heavily infiltrated with small cells, especially if the woman be fifty or over, we should not say that the microscope only shows chronic inflammation, but that

WHILE CANCER IS NOT PROVED, IT IS NOT EXCLUDED.

and should recommend a free removal or destruction of the suspected tissue.

Shall we, then, say that a case is not cancerous which shows no distinct structure of carcinoma on microscope section, only a glandular hyper-

trophy, with some of the glands filled with the epithelia and the stroma infiltrated with small cells, the surface denuded of its epithelial cells and irregular?

May we not reconcile the long contest between the two theories, which assign the origin of cancer respectively to the connective tissue and to the epithelial layer of the glands of the involved organ by supposing that the anatomical arrangement of cells, which clinically and microscopically we call cancer, is only the visible and outward sign of a morbid agent at present hidden from us?

The practical deductions which depend upon our speculative opinions as to the nature of cancer are of the greatest importance.

In the first place, if the disease comes from within, if it is a perverted growth of a part of the tissues, dependent on some original error of development, it is necessarily absurd to try to find, empirically, any medicine which should cure it.

If, however, it is an infection of some kind from without, we are justified in trying empirically, if as yet vainly, for some remedy which may overcome it.

Of more practical importance is the question of the utility of cauterizing the stump or cavity from which a cancer has been removed. There is considerable evidence which shows that surgical interference with a cancer is sometimes followed by a recrudescence of the disease more rapid and violent than the original disorder. If we consider that the operation opens veins and lymphatics which sometimes become infected with the morbid agent, we can better understand why a thorough cauterization of the tissues left bare by the removal of a cancer of the cervix should be apparently so useful in lessening the chances of a return of the disease.

Dr. Franklin H. Martin, of Chicago, Illinois, read a paper with the title

A METHOD OF TREATMENT OF FIBROID TUMORS OF THE UTERUS BY STRONGER CURRENTS OF ELECTRICITY BASED UPON EXACT DOSAGE.

The author recognized in the treatment adopted by Dr. Apostoli a rational, harmless, comparatively painless and eminently successful mode of treating fibroid tumors of the uterus by electricity. It is upon these well-tried principles that Dr. Martin is able, after successful practical experiments, to lay down an exact line of dosage, enabling him to obtain all the beneficial effects of electricity without overstepping the limits of tolerance in the most susceptible or sensitive subjects.

The distinctively original feature of the paper was the description by Dr. Martin of his method of exact calculation of dosage, experiments being cited which showed that a certain local effect may be expected that an active electrode of a given surface from a definite strength of current passing for a certain length of time. The demonstrations proved that in order to get the characteristic local effects of electricity on the mucous membrane of the uterus, or to check hæmorrhage, upon a surface of one square centimetre, a current of twenty-five milliamperes passing for five minutes is necessary. One square centimetre is found to be about the surface represented in length of the uterine sound electrode. Upon this basis of calculation, the uterine canal which would require an Apostoli electrode twenty centimetres in length would require a current, if equal conduction took place from its entire surface, of five hundred milliamperes. The author argued that in many cases this strength of current would not be tolerated, and if it were there is no means of being certain that the sound conducts equally from so large a surface or that it comes in actual contact with the mucous membrane of the uterus in its entire extent.

In order to obviate this difficulty Dr. Martin has employed electrodes, concentrating the current to smaller portions of the uterine canal, so constructed that each portion of the canal may be treated by each succeeding operation.

HE RECOGNIZES BUT TWO VARIETIES OF OPERATIONS.

1. Positive inter-uterine galvanism, which corresponds to Apostoli's "positive galvano-caustique."

2. Negative inter-uterine galvanism, which corresponds to Apostoli's "galvano-caustique negative." These operations were fully described, from which procedures Dr. Martin believes we have a safe, painless, accurate, and rational method of treating fibroid tumors of the uterus. By this method all danger to the patient is avoided, such as may be observed in other treatments.

In conclusion, the principal advantages of this method were summarized under six headings: (1) It is entirely free from danger; (2) it is absolutely painless; (3) it invariably checks hæmorrhage; (4) it rapidly reduces the size of tumors; (5) it alleviates the neuralgic pain; (6) it is a system of treatment of fibroid tumors of the uterus based upon principles which make exact dosage possible.

Dr. Thomas Moore-Madden, of Dublin, Ireland, then read a paper entitled

SOME POINTS IN THE PATHOLOGY AND TREATMENT OF LACERATIONS OF THE CERVIX UTERI.

The pathology and treatment of lacerations of the neck of the uterus have received an amount of attention, in America and elsewhere, which would appear exaggerated were it measured by the comparatively scanty attention as yet accorded in Great Britain. When I read a paper on Emmet's operation at the closing meeting of the Dublin Obstetrical Society, the very name of that operation, or the circumstances calling for trachelorrhaphy had never been alluded to in the transactions of the association of British obstetricians and gynecologists.

In neither English nor American literature have I found sufficient recognition of the frequent complications, pure and immediate, arising from cervical lacerations in obstetric practice: viz., the causation of one of the most troublesome forms of post partum hæmorrhage; and secondly, the occasional occurrence of puerperal septicæmia, as the direct result of lacerations of the cervix uteri. So far as he was aware, the advantages of amputation of the mutilated and hypertrophied cervix, in many cases of extensive stellate and bilateral lacerations, over trachelorrhaphy were not generally recognized.

THE RACIAL AND CLIMATIC CONDITIONS.

are not so obviously different in London and Dublin from the same in New York and Boston, and any method of treatment found useful on our side of the Atlantic, should, *ceteris paribus*, have a like effect in similar cases here. I therefore venture to submit my clinical experience to the judgment of the ninth International Medical Congress, and more especially my American brethren therein. It is to them that we who practice in the narrower limits, and perhaps more conservative atmosphere, of the old country are mainly indebted for our present acquaintance with this department of modern gynecology. I am convinced by my clinical experience, which is now tolerably large, that it is a far better and more rational practice, if any operative treatment be really required, to resort to the amputation of the entire extent of the mutilated and diseased cervix by either *ecraseur* or *galvano-cautery*. I need not say I do not advise this operation indiscriminately; indeed, I think the majority of cases of cervical laceration need no operative treatment specially, and such an operation as the removal of the cervix is not to be undertaken without due caution and, above all, real necessity. When thus justified, how-

ever, the amputation of the cervix, despite the protestations of some eminent gynecologists, is as unquestionably legitimate as any operation in gynecological surgery. By this procedure, when successful, not only may the surgeon rapidly and effectually remove every trace of a morbid condition, which, if uncured, would probably entail a life of continual uterine discomfort. We may also with certainty prevent the otherwise not improbable possibility of the lacerated and hypertrophied parts becoming the seat of malignant disease at a future period.

A paper by Dr. Leopold Meyer, of Copenhagen, Denmark, was then read on

CONTRIBUTIONS TO THE PATHOLOGY OF INFLAMMATION OF THE LINING MEMBRANE OF THE UTERUS (ENDOMETRITIS CORPORIS UTERI).

1. (a) In cases of chronic endometritis, as a rule, we find two varieties of cells, or, rather, of nuclei (as the limits of each single cell are often not distinct), in the inter-glandular tissue. One variety has smaller nuclei; these average as large, or a little larger, than red blood-corpuscles, are stained brightly by hæmatoxylin, carmine, Bismarck-brown, and the substance of the nucleus rarely presents a granular condition.

The second variety has a great resemblance to the so-called decidua cell.

(b) This second variety of cells is not only found in cases where the woman has been pregnant, but are seen in the most developed forms in women whose virginity is unquestionable.

(c) This second variety of cells seems, as the first variety, to be derived from the cells normally found in the inter-glandular tissue of the lining membrane of the uterus, the decidua. Cells of the second variety are found in the normal lining membrane during menstruation.

(d) Besides these two kinds of cells, we find regular connective-tissue cells and white blood-corpuscles in the inter-glandular tissue.

2. In cases of chronic endometritis, the epithelium covering the lining membrane of the uterus can preserve its character of a low columnar epithelium, but it frequently changes character altogether.

Dr. Alfred C. Garrett, of Boston, Massachusetts, read a paper on

TUMORS OF THE BREAST TREATED BY ELECTROLYSIS.

Many, or most of the tumors that so frequently occur in the human breast, we find can be completely cured, if treated while young, or new—that is, while in the first stage of existence, by certain mild applications of electricity.

In the first place, to obtain uniform success by this method, we must plan to find these tumors as soon as possible after they form in the breast, while they are in a curable stage in the majority of cases.

However, we already know we cannot assume that

EVERY MORBID LUMP

that grows or appears in the human breast begins from the first a simple or non-malignant tumor, though the most of them seem to do so, judging from the uniformly successful results of these treatments by electricity when applied to the selected, new, or recent tumor.

It is determined that here we must choose the form of electricity and method of application as carefully as we seek to find the curable cases; for we are not to resort to the usual electropuncture needles, knife, wire, nor any active destructive electrolysis, nor any other means that shall produce solution of continuity. We are to employ simply surface applications of certain graduated, galvanic, steady currents, through peculiar, large, soft, and moist electrodes, so adjusted close to each side of the tumor as to cause this gently chemical current to completely permeate, and wash through the whole mass from side to side in its deeper parts, mainly in directing toward the axilla, for about a half-hour at each séance. It is not enough to simply apply the two electrodes to the surface of the breast or in any manner. Moreover, we need to use a milliampère metre to measure the current that actually passes through the tumor and gland; also a key-board that can enable the operator to pick up and increase the current, cell by cell, to the tolerant and efficient strength, which will be from ten to fifty milliamperes. The current required for each individual case cannot be stated in exact terms, as it is found in practice there is a wide difference in the resistance, tolerance, and effect in different persons; yet this point is of great importance.

The result is, that out of 186 tumors treated since 1864, a record of them having been kept and looked after, 157 disappeared and remained well. Several others did not quite obliterate, however, but left a small nodule, of the size of a chestnut, which in every case disappeared or remained benign.

AFTERNOON SESSION.

Dr. W. H. Weeks, of Portland, Maine, read a paper on

MYOMA IN PREGNANCY.

He considered the question of operation in these cases to be still under discussion. He introduced

the paper by the relation of a case—a young lady, pregnant, having a large uterine fibroid which nearly filled the uterine cavity. He was in favor of allowing the pregnancy to go to term, and such was the opinion of a Boston gynecologist to whom he sent her for counsel. A New York gynecologist, however, advised immediate delivery by the induction of premature delivery. The method by which he would do this was to inject hot water and deliver under ether *pervias naturales*. If allowed to go to time laparotomy would be necessary. Two Boston gynecologists agreed with him, and the author was obliged to surrender. He carried out the instructions of his colleagues to the letter. The patient died in less than an hour after delivery. She seems to have died of hæmorrhage and shock. When, as in this case, pregnancy is complicated by a large interstitial uterine fibroid, occupying and well nigh filling the cavity of the pelvis, is it better to induce abortion or premature labor or to allow gestation to go on to full term, and then deliver by abdominal section?

GUIDED BY THE LIGHT OF ABDOMINAL SURGERY,

I shall maintain that in the vast majority of cases, as stated in the above question, it is better to allow pregnancy to go to term, and then, if it is found that delivery is impossible *per vias naturales*, to resort to abdominal section without waiting till the patient's strength is exhausted by protracted labor. The operation best suited to such a case is Cæsarean section, Sânger's method, and then the removal of the ovaries, and, if possible, the fallopian tubes. Would it not have been better in this cause to have allowed the patient to go on to natural labor, and then performed laparotomy before she was broken down?

The author had sent out a letter of inquiry to prominent gynecologists of this country and abroad. Nine out of thirteen physicians were in favor of the induction of premature labor. This proportion he hoped would be reversed.

Professor Grally Hewett, of London, England, opened the discussion and commended the paper very highly.

IT IS A THANKLESS DUTY

to bring an unfortunate case before the congress, and Dr. Weeks should have our admiration for doing so. I think that it is generally admitted that rapid evacuation of the uterine cavity in labor is a mistake. The operation in this case seems to have been done rather rapidly. Whether this had anything to do with the hæmorrhage and shock I do not know.

Dr. Trenholme, of Montreal, Canada, had had three cases of labor complicated with fibroids, which he related in brief. In one of these premature labor was brought on by a sessile tumor in the base of the uterus. The temptation to remove the tumor was great, and he did it, but the patient died. In his second case he found a small fibroid, which he left alone. The patient did well for some time, but had a return of the trouble. He believed evacuation of the uterine contents should take place slowly.

Dr. Lawrence of Bristol, England, discussed the question.

SHOULD A WOMAN SUFFERING FROM FIBROID TUMOR BE ALLOWED TO MARRY?

This is a question frequently presented to the physician and gynecologist. If the patient is not suffering from symptomatic troubles you may tell her that she will probably never be pregnant, but if pregnant she may probably have hemorrhage and may die of it. With this understanding, if she persists let her marry. He reported eight cases in brief. In one of these, after a large number of pregnancies, the tumor disappeared entirely.

Dr. S. C. Gordon, of Maine, said that the case of Dr. Weeks was originally his own, and he felt like saying something. He agreed with Dr. Weeks that no abortion should be induced in this case. In his opinion the position of the uterus in this particular case forbade the operation. The position of the tumor influences very largely our procedure. He reported an illustrative case. In a second case which he cited he advised the induction of abortion, because the tumor involved the anterior wall of the uterus as low down as the os.

Dr. Alexander Dunlap, of Springfield, Ohio read a paper on

THE EARLY HISTORY OF OVARIOCTOMY IN AMERICA.

This was a resumé of the trials and opposition with which the early American ovariotomists met in prosecuting their work. The author's own work, which is known to have been of great importance; though little of it has been published, was described minutely.

Early in 1843, with a very limited knowledge of medicine and surgery, he came in contact with a very peculiar case of ovarian dropsy which he had been led to consider as incurable. This he tapped several times, with the usual results. He then went into the history of his first ovariotomy with all the enthusiasm of forty years ago. After much delay the patient succeeded in forcing him to perform the operation,

much against his will. He invited ten of his medical friends to witness the operation. They declined, saying that they could see enough people die without seeing them killed. One of them presented himself at the time. He was an old retired army surgeon. With this assistant and four students he operated, first giving the patient a teaspoonful of laudanum, after which he went to work. The operation was minutely described. The patient was placed in bed after the operation, with no especial shock, having watched every movement made with care and interest. She did well for four days, when she had a severe diarrhoea which was brought under control. She did well for a time, when she was taken with an excessive excretion of urine and died on the twentieth day after the operation. There was no septicæmia. He was convinced that she did not die from the operation but from the tappings, which had deranged the system and were probably the cause of the kidneys acting as they did. It is probable that had he operated when she first wanted him to do so she would have been alive to-day.

Dr. Kimball, of Lowell, Massachusetts, was then asked by the president to give his experience in early ovariotomy in the East. His story was quite similar to that of Dr. Dunlap, and his opposition as great. This opposition, he must say, came mostly from the New England metropolis, Boston. Being asked for his first case, he said his first case was one in which he did not operate. He then reported the first case in which he did operate about thirty-five or forty years ago. He invited ten physicians. During the operation he met with considerable difficulty in the form of nine cysts, and when he looked about for his assistants they had all left but one.

Professor N. Bozeman, of New York, N. Y., reviewed the revival of the history of ovariotomy after its abandonment by McDowell, of Kentucky, and its condemnation by the profession. Dr. Miller was the first to use chloroform as an anæsthetic in ovariotomy in America. It was in Terre Haute, Indiana, and Professor Bozeman gave the chloroform. He gave Dr. Dunlap much credit for his work, and especially for what he had done in recognition of the importance of adhesions.

Professor A. Cordes, of Geneva, Switzerland, read a paper on the

MEDICAL TOPICAL TREATMENT OF UTERINE CANCER.

The paper was divided into a general consideration of the subject: medical and surgical treatment, the opinions and treatment of Hippocrates and Celsus; the obscurity of the pri-

mary symptoms; the impossibility of hysterectomy in certain cases; adherence and extension to other organs; statistics; topical applications; the treatment of advanced periods of cancer by turpentine, the properties of this remedy, its application and preparation by M. Betrix, assistant to the clinique. The paper closed with a series of conclusions at which the author had arrived.

A paper was read by Dr. A. Laphorn Smith, of Montreal, Canada, on

A NEW THEORY AND TREATMENT OF DISPLACEMENTS OF THE UTERUS BY ELECTRICITY,

and one by Dr. Apostoli, of Paris, France, entitled

SOME NEW APPLICATIONS OF THE INDUCED OR FARADIC CURRENT TO GYNÆCOLOGY.

SECTION ON OBSTETRICS.

THIRD DAY—MORNING SESSION.

DISCUSSION ON CÆSAREAN SECTION.

Professor Alexander R. Simpson, of Edinburgh, Scotland, was in accord with the ideas expressed in Professor Lusk's paper, though he did not think the time had yet come when craniotomy could be entirely laid aside; its performance, however, should be restricted. In Edinburgh pelvic deformity was rare and craniotomy was rarely required.

The cases requiring abdominal section could be divided into two groups; first, those where the prognosis was rendered grave by pre-existing inflammatory conditions or sepsis, and, second, those favorable cases where we could choose the moment and place of operation, when we should nearly always succeed. At present he would be bold who would perform Cæsarean section by other than the Sænger method. Where the uterus was diseased and its removal would give the patient a chance, he would employ Porro's method.

Professor August Martin, of Berlin, Germany, considers the Sænger modification very important, and one which has rendered the operation safe. Since the adoption of this modification the section had been done in some cases where he thought version could have been safely performed. In moderate degrees of pelvic contraction we should ascertain whether delivery could not be effected in other ways, as by version, before performing the section. He had done the Cæsarean in pregnancy complicated with cervical myomata. Sænger had operated in similar cases. Where carcinomata of the organs in the pelvis endangered life we should endeavor to deliver the child and remove the growth at

the same time. When the uterus was infected by septic material it should be removed. In a rachitic, kyphotic woman, with heart and lung-disease, the symptoms were so grave that he did not think the woman would stand normal parturition or the puerperal state; accordingly he had done abdominal section, saving both child and mother, but the latter finally died from her lung trouble. Much depended upon our knowledge of the technique; if we succeeded in doing the operation perfectly, either the Sænger or Porro operation was justified. The statistics of the Porro operation were rendered less favorable by Italian operations done on unfavorable subjects who were septic and in whom the operation was too long delayed. The Cæsarean section always gives us hope of perfect recovery, while the Porro operation prevents future maternity.

Abdominal section is indicated when it seems impossible to bring a living child through the pelvis (if care be taken not to operate too soon), when neoplasmata narrow the canal or endanger the progress of parturition; and when diseases are present in which the life of mother and child would be endangered by the process of parturition or the puerperium.

The Cæsarean section should be done when we have reason to believe that the patient can endure another pregnancy; the Porro operation, or total extirpation, when there is no hope of future maternity or where the disease, from its nature or seat, is probably fatal.

Dr. Joseph Taber Johnson, of Washington, D. C., reiterated the opinions expressed by Professors Lusk and Wathen. He believed that by delay and the attempt to perform other operations many lives were lost. He advocated the Porro operation when the uterus was septic or bruised. The wonderful results of foreign operators were due to their exceptional opportunities and skill, the operations being done by a few men, while here the operators were scattered, and many operations had been done in the backwoods.

Dr. Balls-Headley, of Melbourne, Australia, advocated the Cæsarean section when the child, could not be born alive through the natural passages. There were also certain conditions, as carcinoma of the cervix, where other operative interference would allow the child to be born, but in these cases his experience taught him that the Cæsarean section offered a very much better prognosis. The operation was an easy one. In slight pelvic contraction the section gave good results. We should operate early, or, if the parts were bruised, substitute the Porro operation.

Dr. Doléris, of Paris, France, accorded with the views of Lusk and Martin. He believed in the use of the elastic ligature.

Professor W. W. Jaggard, of Chicago, Illinois, said, with reference to the *relative indication* for Cæsarean section, that in cases where the child could pass *per vias naturales*, when diminished in size, with safety to the mother, as, for example, in pelvic contractions of from 6 to 8 ctm. in the true conjugate, four considerations should receive attention :

I. Craniotomy does not require a higher degree of operative skill than every qualified obstetrician ought to possess, when proper instruments are employed, *e. g.*, Braun's curved trepan and cranioclast.

II. The mortality of craniotomy, when performed in time, and before exhaustion and infection of the woman, with adequate skill and antiseptic precaution, is, as remarked by Barnes, practically nil.

III. The consent of the woman, obtained without direct or indirect coercion, an essential condition of the relative indication, is seldom gained, if the facts be presented to her.

IV. That there is much sentimentalism with reference to the value of the life of the child in utero, as compared with the value of the life of the mother. This interest in the child is purely impersonal and scientific. The delight in saving the child's life is frequently that arising from the success of a difficult scientific experiment.

Professor William T. Lusk, of New York, N. Y., said that the points made by Professor Jaggard were opposed to his recent investigation. With skill we could remove a living child where the contraction was only 7 to 10 ctm. Craniotomy was a dangerous operation, and, under three inches, required much skill and good instruments. He believed the Cæsarean section not more dangerous than the extraction of the child after craniotomy.

In his recent case the operation was done in the open ward, with the same preparations as for ordinary laparotomy. The children, according to his researches, did not die, as general opinion would have it. The Cæsarean section was easy to do. He thought there was danger, in the employment of the elastic ligature, from paralysis and inertia, caused by the compression. We did not want to encourage trying craniotomy and then Cæsarean section, but should make the latter the operation of election. Most of our cases had been done under circumstances which had rendered death inevitable.

AFTERNOON SESSION.

Dr. J. A. Doléris, of Paris, France, presented a paper on the

TREATMENT AND SURGICAL RESTORATION OF THE CERVIX DURING PREGNANCY.

He first described a case where at a previous pregnancy the cervix had been very extensively lacerated. The patient was again several months pregnant, and suffered from a profuse, fetid, probably gonorrhœal discharge. There was severe vaginal pain, and the cicatrix of the cervical laceration was very painful when touched. Preliminary treatment did not relieve the patient and the cervix was sewed, four sutures being placed on either side; the vagina was filled with iodoform gauze; the result was excellent. There was no interference with the pregnancy.

This was only one of several similar cases where he had operated successfully.

A severe laceration accompanied by profuse and fetid discharge was very distressing, and might lead to abortion or puerperal fever.

He thought the danger of producing abortion by the operation was exaggerated, and that in the class of cases mentioned it produced good results.

Dr. Ople, of Baltimore, Maryland, recalled a single case where a severe bilateral laceration of the cervix had been operated upon; the woman proved to be pregnant, and aborted on the sixth day. There was objection to any operation about these parts during pregnancy, especially early pregnancy. Cervical operations were not without their special dangers at this time, and should be but rarely done.

Professor Leischman, of England, said that preconceived opinions often stood in the way of new truths. His preconceived opinion was that operations about the cervix were likely to produce abortion, especially when not done by the most skilled hands. Any operation during pregnancy, and this in particular, should be done only in rare and strictly defined cases.

Dr. Doléris responded that he had not advised the operation except in the well-defined cases he had mentioned, and in which he thought it would rather tend to prevent abortion.

Dr. Joseph Kücher, of New York, N. Y., read a paper on

ON THE RELATION OF THE ATMOSPHERE TO PUERPERAL FEVER.

He spoke of the importance of pure air in the lying-in room, and put the question: What influence has an impure air on puerperal fever? A *résumé* of the literature and statistics of the subject shows that the malaise of dissecting-rooms

is more due to impure air than to absorption of septic material, and that true sepsis occurs only by inoculation through an open wound.

Overcrowding does not necessarily cause puerperal fever when septic infection is prevented. Pure air undoubtedly allows of more rapid convalescence; bad air depresses and allows the more easy access of septic infection; sepsis does not occur from bad air alone, but only from direct contact with septic matter.

Dr. Thomas More-Madden, of Dublin, Ireland, presented a paper

ON THE PREVENTION AND TREATMENT OF
PUERPERAL SEPTICÆMIA,

which was read by the secretary.

The author considers all forms of septic fever consequent on parturition, and occurring within the puerperal period, as various manifestations of a specific puerperal fever. Puerperal sepsis may originate in three ways, viz., from inoculation with the micrococci of clinically allied diseases, such as erysipelas or scarlatina; from infection by the pathognomonic, chain-like micro-organisms evolved by other puerperal fever patients; or the disease may arise from auto-infection with self-generated septic matter. Although absolute immunity from puerperal fever must be considered hopeless, its prevalence may be much diminished, and its virulence minimized, by the rigid observance of certain precautionary antiseptic and hygienic measures.

For prophylaxis the author strongly recommends the administration, during the latter months of pregnancy, of the chlorates of iron, potash and quinine. Strict attention to the patient's local and general hygienic and aseptic condition is insisted upon. The author uses a carbolyzed intra-uterine douche daily throughout the puerperium, together with large doses of ergot for the same time.

In the treatment of puerperal fever he relies primarily on the maintenance of the patient's strength by suitable nourishment and stimulants; secondly, on the daily washing out of the uterine cavity with hot water, plain or medicated; thirdly, on full doses of quinine and turpentine—which latter drug he believes to be especially valuable in every form of puerperal fever.

Professor Chas. Warrington Earle, of Chicago, Illinois, presented

A STUDY OF CERTAIN QUESTIONS IN CONNECTION WITH PUERPERAL FEVER, WITH PARTICULAR REFERENCE TO THE USE OF INTRA-UTERINE DOUCHE AND CURETTE.

After a discussion of various theories, he concluded that puerperal fever was in every instance produced by infection from without. There

was no such thing as autogenetic infection. No one could now disbelieve the germ-theory. Experience had shown that it was impossible for decomposition to occur without the presence of bacteria. There were many ways and many forms of infection. In a larger number of cases than we could suspect, debris, bits of placenta, decidua, etc., were left in the uterine cavity, which were, in our present modes of practice, infected by patient, nurse or doctor.

The only rational treatment was to remove all decomposing material, and prevent a local poison from invading the entire system, and producing general sepsis.

Any marked rise of temperature in the puerperal woman should be investigated, and, if not plainly due to other causes, the genital tract should be suspected. A vaginal and uterine douche not reducing it, the uterus should be curetted, using a large, blunt instrument with all antiseptic precautions and great gentleness; the curetting to be followed by an intra-uterine douche to carry away all loosened shreds.

The author cited cases where the curetting had been done with the most gratifying results, and in no case did he know of any harm resulting from it. He did not wish to be understood as advocating the indiscriminate use of this measure, it being indicated only in those cases where the high temperature persisted after an intra-uterine douche, when it was extremely valuable.

Dr. R. Lowrey Sibbet, of Carlisle, Pennsylvania, read a paper on

THE PREVENTION OF PUERPERAL FEVER.

The contagium was always from without, and was never autogenetic. It was carried always by the medical attendant or nurse. Aseptic cleanliness on their part was the best prophylaxis. He had always kept a disinfectant on his washstand, and had never lost a case of puerperal fever. He did not believe in the intra-uterine douche in private practice; it was dangerous, and could not be trusted to an unskilled nurse.

Dr. Doléris, of Paris, France, thought that in practice we were ahead of theory. He used the douche and the curette, or the milder intra-uterine brush, in cases such as Professor Earle had indicated. He had used these measures with the very best success in many cases, from the second to as late as the seventeenth day.

Professor W. W. Jaggard, of Chicago, Illinois, would treat the uterus when mild infection had already begun. He vigorously protested against Madden's use of the douche, daily, and was more in accord with the Vienna school, where the uterus was washed out thoroughly with a weak (two

and one-half per centum) carbolyzed solution, and a bacillus of iodoform weighing from sixty to seventy grains introduced. No more interference. The use of the douche not repeated, unless in exceptional cases. There was no danger from iodoform poisoning.

Dr. J. F. Y. Paine, of Galveston, Texas, in twenty-four years had but one case of puerperal fever. The best prophylaxis was to secure firm contraction of the uterus and to remove clots. The uterine douche was meddlesome and hurtful, in many cases. Cleanliness, rest, quiet, good air, and good diet were all important. Quinine and iron might be given in some cases.

Dr. D. T. Nelson, of Chicago, Illinois, mentioned a very grave case of puerperal septicæmia where sulphuretted hydrogen gas was used, as in Bergeon's method in phthisis. At first the symptoms became more favorable, then diarrhœa set in. The treatment was continued cautiously, but rectitis and hæmorrhage appeared, and the patient died. Here, at first, the treatment seemed to be beneficial, but later, no doubt, hastened her death.

In a second case, in the third week of typhoid fever, a miscarriage occurred at the third month. The fever became septic, with a characteristic scarlatinal rash. The same treatment was used, employing the gas in smaller quantity, and with immediate amelioration and recovery.

Dr. William T. Stewart, of Philadelphia, Pennsylvania, indorsed Professor Hewitt's views, and thought the liquor sodæ chlorinata, $\frac{3}{4}$ ij. to O ss., the best for vaginal douching.

Dr. Lloyd Roberts, of Manchester, England, used quinine, irrigation, and the curette when necessary. Mild cases would get well without treatment. He did not agree with Dr. Sibbet that the doctors and nurses so often carried the disease. He considered the mercuric-bichloride douche dangerous when strong; calomel was used successfully forty years ago. Could it not have had an antiseptic action?

Dr. Cameron, of Montreal, Canada, did not think we could treat the disease intelligently until we realized that puerperal fever and puerperal septicæmia were synonymous. There was no such thing as auto-infection; endosepsis was a pernicious myth. His views were in accordance with those of Professor Jaggard. Antiseptic precautions were to kill or to prevent the entrance of germs. There was a very general lack of knowledge as to when or how to use antiseptic measures. The douche and curette were valuable in the right place, but harmful in others.

When one has used the douche, iodoform, and the antiseptic pad, why use other local measures?

The canal had been sterilized. Food, stimulants, rest, and iron were important. There was no specific treatment. Each case should be studied. Local conditions required local treatment, general states general treatment.

Professor Charles Warrington Earle, of Chicago, Illinois, thought the ground had been very thoroughly gone over by Dr. Cameron. He believed in adopting absolute antiseptic precautions beforehand. If possible, there should be clean, intelligent nurses. The cause of the sepsis should be sought; if in the uterus, one should clear it out and the patient would probably recover.

Dr. Rodney Glisan, of Portland, Oregon, presented a paper on

CONSERVATIVE OBSTETRICS; WITH SPECIAL REFERENCE TO THE REMOVAL OF THE SECUNDINES AFTER ABORTION, AND TO THE TREATMENT OF THE THIRD STAGE OF LABOR.

He thought that the expectant method of treating retained secundines after abortion and the placenta after labor was unsafe in private practice, especially when the physician resided at a distance from his patient; yet it might succeed fairly well in hospitals under the constant vigilance of experienced practitioners.

He approves of the immediate removal of the secundines after abortion in all cases where the cervix is somewhat dilated or dilatable, as is generally the case for an hour or so after the expulsion of the embryo, and in all cases of septicæmia or dangerous hæmorrhage, no matter when they occur. When neither of these accidents is present and the cervix is closed, he does not advocate the immediate and forcible removal of the secundines, but would wait a more favorable condition, when the finger could be easily inserted, moderate hæmorrhage being controlled by ergot, the tampon, etc. No instrument in these cases was so safe, trustworthy, and generally useful as the finger. He adopts the bi-manual method, depressing the uterus with one hand to within reach of the finger of the other, giving an anæsthetic, if necessary.

In the removal of the placenta, during labor, the author used the Credé method, supplemented by moderate traction on the cord. He does not believe that moderate traction on the cord, when the uterus is well contracted and properly grasped by one hand externally, is attended by the least risk of inversion or of increasing the hæmorrhage by a suction-like process of the placenta on the cavity of the womb. He thinks that traction upon the umbilical cord as an aid to delivery of the placenta ought not to be abandoned.

Professor Grally Hewitt accorded perfectly with Dr. Glisan. In cases of abortion there was often great difficulty in passing the internal os. We must not expect the os to be open until the abortion had continued for some time. Instruments other than the finger were dangerous. He was much impressed with the importance of not allowing the secundines to remain long in the uterus.

Others present expressed the same views.

AFTERNOON SESSION.

Dr. Edward Henry Trenholme, of Montreal, Canada, presented a consideration of

INTERNAL UTERINE HÆMORRHAGE, THE RESULT OF OVER DISTENSION OF THE UTERUS FROM HYDRAMNIOS.

The author pointed out some of the causes of hydramnios and the serious result of such distension. The distension caused deficient nutrition of the decidua which allowed it to rupture, causing hæmorrhage from the site of the tear. The blood might clot *in situ* or pass between the layers of the decidua. The hæmorrhage began with severe pain and sense of fullness, signs of internal hæmorrhage. We should forestall the danger by causing premature labor before the hæmorrhage occurred, that is, as soon as the distension becomes excessive. Should bleeding have occurred, it is necessary to wait until the vessels have closed before one attempts treatment.

A posthumous paper by Dr. W. T. Taylor, of Philadelphia, Pennsylvania, on

MATERNAL IMPRESSIONS AFFECTING THE FŒTUS. was read by title.

SECTION ON GENERAL SURGERY.

THIRD DAY—MORNING SESSION.

Dr. W. N. Hingston, of Montreal, Canada, discussed Professor McLean's paper of the preceding day. He remarked that he agreed with him in all but one thing, viz., regarding abdominal section. He had operated in three cases; in two of these cases he had made the abdominal section, and both patients died from shock. In the second case he performed the lumbar incision and the patient survived, and there was but little disturbance of the system after the operation. The speaker considered the lumbar incision advisable in all cases where possible.

Mr. Edmund Owens, of London, England, thought there were three factors which should guide us in the operation.

If there was a doubt about the operation, it

should be done through the abdominal wall. Again, the size of the tumor must be considered. And in what line of the profession is the operator called, gynecology or surgery? This latter will often decide the point according to the ground he is apt to go over.

Dr. Hardy, of Indianapolis, Indiana, mentioned a fatal case where the median incision was made.

Dr. F. Lange, of New York, N. Y., used the lumbar incision; and if the tumor was too large to be removed, he thought it a good plan to incise it and perform a second operation when it had been reduced.

Professor McLean, in conclusion, remarked that perhaps he was not quite understood, as he had distinctly stated in his paper that where the lumbar incision could be performed it was preferable. In the cases he mentioned he had no choice. His first case the speaker thought was an ovarian tumor, and naturally made section in the median line.

Dr. Richardson, of Boston, Massachusetts, read a paper on

GASTROTOMY FOR FOREIGN BODIES IN THE THROAT.

A patient (male), thirty-seven years of age, was presented to the section, from whom the doctor had removed a plate with four teeth attached from the lower portion of the œsophagus, about one and one-half inches from the stomach entrance, by performing gastrotomy. When first seen by the doctor, he could discover no obstruction, but the man was, however, retained in the hospital. He was finally discharged apparently well, the pain at the point indicated by him having subsided, and he was able to eat his meals. Eleven months later he returned very much emaciated, the pain had returned and was much more severe; gastrotomy was decided upon and the operation performed, the opening being made large enough to admit the hand; the plate was then discovered in the location stated. Owing to its long retention a small abscess had formed there, which subsequently ruptured, but the patient made a rapid recovery.

The speaker remarked that had he been certain that the plate was there, he was positive he could have removed it with the forceps; but the difficulty lies in locating, and also the location of the cricoid cartilage and the cardiac opening. He had operated in sixty cases, and found the average distance from the incisors to the cardiac opening to be fourteen and one-half inches; the longest was seventeen inches, and the shortest ten and one-half inches.

The writer described minutely the anatomy of the parts and location of the plate removed;

showing that by gastrotomy or œsophagotomy the œsophagus could be reached at all points with ease.

Professor F. S. Dennis, of New York, N. Y., presented some specimens of *scarlet fever bacilli* sent by Professor Lee, of Edinburgh, Scotland. He then read a paper on

AMPUTATION OF THE HIP-JOINT FOR SARCOMA.

The case was quoted in order to induce surgeons to report such cases and the results. Out of twenty-eight cases of sarcoma of the thigh, only two were living.

The case at present was a young man seventeen years of age, whose family history was excellent. Five months before entering the hospital the swelling in the left thigh commenced; it had been aspirated, and ten ounces of fluid removed. The tumor when seen was ten inches in length, and twenty-seven in circumference, the inguinal glands were slightly enlarged.

The diagnosis of sarcoma was made, and amputation at the hip-joint was decided upon. No elastic bandage was applied to the leg, but a strong rubber band was passed around the thigh above the joint, which controlled all hæmorrhage, and the operation was a bloodless one. On the sixth day the dressings were removed, and the wound was found to have united by first intention; temperature did not rise over 100° F., and only reached that point on one day.

The points worth noting are: (1) this patient had a sarcoma, with no hereditary taint; (2) there was no exciting cause; (3) the great rapidity of the growth; (4) absence of metastasis; (5) rapid return to health, as the boy is perfectly well now; (6) importance of secondary hæmorrhage; (7) unfavorable prognosis in his condition; (8) the diagnosis was confirmed by the microscope in the hands of Dr. Grower; (9) abscess limited to shaft of the bone; (10) absence of a spontaneous fracture of the femur; (11) large size of the mixed cells of the sarcoma; (12) radical removal of the tumor by amputation at the hip-joint, not at the upper third of the thigh.

Dr. Garmody, of New York, N. Y., read a paper on THE SURGICAL TREATMENT OF TRAUMATIC INSANITY BY MEANS OF THE TREPHINE.

The speaker reported the case of a young woman who was struck on the head with a brick, causing depression of the skull; she had been trephined shortly after, but ten years later she began to exhibit symptoms of insanity; trephining was suggested by the speaker, and the operation followed out, the space, after the operation, being three and a half inches by two inches. No elevation of temperature followed, and at the end

of twenty-one days she was perfectly rational; the wound united by first intention.

Sir James Grant, of Canada, remarked that the case was an interesting one, and in his experience of brain surgery he had found that the lower type of brain would bear a fracture of the skull much better than those of an intellectual type. He quoted the case of a mill-hand who fell out of a window and fractured his skull. The speaker was sent for, and on his arrival found the man walking about, and yet there was a depression in the back of the skull in which the finger could be inserted; the brain, he considered, became very sensitive in educated individuals,

SECTION ON MILITARY AND NAVAL SURGERY AND MEDICINE.

THIRD DAY—MORNING SESSION.

The first paper of the day, upon

THE PROPER TREATMENT OF PENETRATING WOUNDS OF THE JOINTS,

was read by the author, Professor Frederic Hyde, of Syracuse, New York.

After a critical review of the history of the subject, of the methods advocated by various civil and military surgeons for the treatment of these wounds, and the textural changes resulting therefrom, the author stated that the result of the wound, whether incised, lacerated, contused, or punctured, depends upon the intensity of the inflammation and the destruction of tissue, and presented his views as to the treatment. These may be summarized into: The arrest of hæmorrhage; treatment of shock; the removal of foreign bodies from the wound, which should be enlarged, if necessary. In all cases of supuration a direct opening should be made for its evacuation. After any form of injury an effort should be made to save the limb; perfect immobility should be secured by plaster of paris or other fixative dressing; finally, pain should be alleviated, and the general condition be improved by stimulants, good food, and the like, according to indications. The treatment of the injury throughout should be antiseptic. The speaker contrasted the earlier treatment of joint-wounds, which forbade the opening of a suppurating synovial sac, with the treatment of to-day, and characterized the former as the spoliative and the latter as the saving treatment. Amputation should only be resorted to as a *dernier resort*.

The next paper, upon the same subject, by Dr. George L. Porter, of Bridgeport, Connecticut, was then read. It had especial reference to the injuries of the larger joints, particularly that of

the knee. The treatment should be adapted to each individual injury; aseptic precautions, complete rest, the ice-pack, and expectant treatment generally the author thought to be applicable to most cases.

Dr. Eli A. Wood, of Pittsburg, Pennsylvania, read a short paper on this important subject, which in the main coincided with the views as expressed by Dr. Hyde.

Dr. Marston, of England, favored amputation.

Dr. Janes, of Waterbury, Vermont, stated that his experience had been an unfortunate one, all his cases having died.

Professor E. H. Gregory, of St. Louis, Missouri, inveighed against resorting to amputation, and favored the opening of the wound under aseptic precautions and removal of foreign bodies, and careful supporting treatment.

Dr. G. T. Langridge, of England, spoke of his large experience in wounds of the knee-joint produced by machinery; under aseptic treatment a very large proportion of cases recovered completely.

Dr. L. von Farkus, of Buda-Pesth, Hungary, stated that during the late Servo-Bulgarian war there were observed nineteen cases of gun-shot penetrating wounds of the knee-joint, all of which were, with one exception, treated by fixation by the plaster of Paris bandage, after free opening under antiseptic precautions and drainage; fever was absent in all cases, and all recovered, including the exception mentioned, which was a case of injury so serious as to require amputation.

THIRD DAY—AFTERNOON SESSION.

The paper of Dr. W. S. Tremaine, U. S. army, entitled

IS LAPAROTOMY FOR GUN-SHOT WOUNDS OF THE INTESTINES FEASIBLE IN MILITARY PRACTICE AND ITS TECHNIQUE?

and another upon

THE TREATMENT OF PENETRATING WOUNDS OF THE ABDOMEN, WITH WOUND OF THE INTESTINES,

by Dr. Frances Patrick Staples, of the British army, were read by title.

An abstract of a paper upon.

THE PROPER TREATMENT OF PENETRATING WOUNDS OF THE ABDOMEN,

by Dr. S. T. Armstrong, U. S. Marine Hospital Service, was, owing to the absence of the author, read by Dr. Smith, of the army. The main points made by the writer were, that the treatment must depend upon the part injured, and that rest, sedatives, expectant treatment, with laparotomy as a last resort should generally characterize it.

The next paper, also upon this important subject, entitled

ON NON-FATAL PENETRATING GUN-SHOT WOUNDS OF THE ABDOMEN TREATED WITHOUT LAPAROTOMY,

by Henry Janes, M.D., of Waterbury, Vermont, was read. The author maintained that the tendency at present is to too much operating upon the abdominal cavity. He had tabulated the cases observed by himself during the late war, of penetrating gun-shot wounds of the abdomen, covering twenty-seven cases, eighteen of which were complicated by lesions of the abdominal viscera, and other cases of injury to pelvic and abdominal organs. In none of those cases had operations been performed, except for the purpose of removing fragments of bone, the missiles, or other foreign bodies.

The papers upon the subject of Penetrating Gunshot Wounds of the Abdomen, elicited an interesting discussion, in which Dr. Thomas G. Morton, of Philadelphia, Pennsylvania, participated.

The first point to be considered, he said, in the treatment of these wounds, is whether the patient is in a proper condition for an operation; upon this depends the success of many operations. Another point of great importance is the positive knowledge of the existence of a perforation of the intestines or other abdominal organs, or even of a mere penetration of the peritoneum, without such complication. There being no doubt in the surgeon's mind as to these points, he should not have the least hesitation in opening the abdomen. There exists, in all cases of penetration, a possibility of loss of blood from some severed vessel, and of the escape of fecal matter into the peritoneal cavity.

The abdomen should always be opened under strict antiseptics; thus the operation is attended with little danger. In cases of stab-wounds of the abdomen, with perforation of the peritoneum, he would advise making an incision sufficiently large to enable the surgeon to clearly see what he is doing, and, having secured any bleeding vessels, washing out the cavity with a warm solution of bichloride of mercury, a 1-10,000, until the water returns perfectly clear, and then sewing the wound in the usual way. He prefers, in the majority of cases, to make the incision over the middle line, except in perityphlitic abscess, when he makes a curvilinear incision over the most prominent parts of the abscess. His experience has taught that a large incision is better than a small one, and safer in every respect. For a gunshot wound he proceeds in the same manner. In a boy seventeen years of age, with a penetra-

tion of the transverse colon, and a young negro with a similar injury, upon whom he lately performed this operation, the temperature did not exceed 101° and 102° F., respectively, and this for the first day only, recovery being perfect and rapid in both cases.

Dr. Henry Janes, of Waterbury, Vermont, asked Dr. Morton how long a time such an operation as he had described usually required.

Dr. Morton, in answer, replied that the time varied somewhat, according to the seat and extent of the injury, but that from one hour and a half to two hours was, as a rule, sufficient.

Dr. Varian, of Titusville, Pennsylvania, desired to know Dr. Morton's opinion as to the practicability of performing this operation upon the battle-field.

Dr. Morton, in reply, thought it would be difficult, but that the numerous objections which had been given concerning the impracticability of operating were easily disposed of. In the first place, the probable abundance of pure spring water in the neighborhood with which to prepare the solution of the bichloride—which can easily be carried in the pocket—and the removal of the patient to some field hospital, were, of themselves, conditions which would enhance, rather than diminish, the chances of success. He considers it the surgeon's duty, in the light of recent experience and observation, not to temporize, but to make an effort to save the patient; this operation can do it, while the expectant treatment involves many dangers. He is confident that something can be devised for use on the battle-field; a modified antiseptics is better than no antiseptics at all.

Dr. Daniel Smith Lamb, of Washington, D. C., asked how large a wound would induce him to operate.

Dr. Morton replied that the slightest perforation of the peritoneum was an indication for the operation, for it is well known that these small wounds may be, and are often, followed by grave results. He said that he advocates the opening of the abdomen in typhoid fever when perforation of the intestine by ulceration has taken place; such an operation gives the patient the greater chance of recovery.

The President, Professor Smith, adverted to the great importance of this subject. What we want, to deduce conclusions for our future guidance, is an accumulation of facts. Dr. Morton, by his remarkable success in these cases, which success was not, it may be confidently asserted, the result of mere chance, and the New York surgeons, with their recent experience, had, he thought, been accumulating such facts very rap-

idly. In the light of these facts the legal responsibilities of the surgeon should be considered. The President concurred with Dr. Morton in his views as to the possibility of modifying antiseptics to meet the exigencies of the battle-field.

Dr. Moore, of Richmond, Virginia, read a paper entitled

THE TREATMENT OF PENETRATING GUNSHOT WOUNDS OF THE ABDOMEN.

The author gave statistics of cases of this nature and the rate of mortality, and quoted at length from reports of the French and British armies.

No surgeon had, in his opinion, had sufficient experience with this operation, which was comparatively a new one, to be considered an authority on disputed points. He spoke of the difficulties of diagnosis of perforation, and advocated the exploration of the wound with some delicate instrument. The incision should be made only sufficiently large to allow a thorough exploration, and the earlier after the reception of injury, barring the occurrence of shock, the greater were the chances for recovery. It is the opinion of Sir William Malcolm that if the operation be delayed twenty-four hours no case ever recovers.

In conclusion, he advocated supporting measures and the use of quinine hypodermically, previous to the operation, to diminish the liability of resultant shock.

Dr. Varian's views were in harmony with those of Dr. Moore, so far as civil practice is concerned, but the question still to be discussed was the treatment of such cases upon the field of battle.

Dr. Watson, of Jersey City, New Jersey, agreed with Dr. Morton.

Dr. Bentley, of Little Rock, Arkansas, dissented from the opinion of Dr. Morton, and regarded the application of the method of treatment as impossible on the battle-field, as it is an operation which requires skill, time, and care. He, however, recognized its value in private and hospital practice, where all the conditions are favorable.

SECTION ON PATHOLOGY.

THIRD DAY—MORNING SESSION.

THE PIGMENTATION OF THE SKIN AT THE ARTICULATION OF THE PHALANXES IN CHLOROSIS.

Dr. Pouget, of Cannes, France, read a paper on this subject, in which he directed special attention to pigmentation of the knuckles, a fact first noticed by Bouchard, of France.

Dr. Thomas Taylor, of Washington, D. C., read a paper on the

CRYSTALLOGRAPHY OF FATS,
in which he directed special attention to their condition and relation to health and disease.

THE ETIOLOGY OF LIVER ABSCESS

was the title of a paper sent by Dr. Kartulis, of Alexandria, Egypt, and read by Dr. J. S. Grant (Bey), of Cairo.

Professor Charles W. Earle, of Chicago, described

FIBROID DEGENERATION OF THE PANCREAS,
of which he had reported cases, and which was liable to be mistaken for cancer.

AFTERNOON SESSION.

Dr. John North, of Keokuk, Iowa, read a paper on

THE PATHOLOGICAL RELATIONS OF PTOMAINES
AND LEUCOMAINES.

The paper was discussed by Dr. Johnson and Dr. Keller, and was followed by a paper on

TYROTOXYCON,

by Professor Victor C. Vaughan, of Ann Arbor, Michigan.

SECTION ON DISEASES OF CHILDREN.

THIRD DAY—MORNING SESSION.

Dr. Cyrus Edson, of New York, N. Y., read a paper on

THE MILK-SUPPLY OF CITIES,
calling attention to the great importance of improving and maintaining the standard of milk-supply by banishing adulterated and infected milk. He advocated the examination by veterinary inspectors, from time to time, of every herd of cattle in the state, in order to secure the destruction of all animals suffering from tuberculosis, and the quarantine of those liable to cause contagious disease.

Professor Albert Leeds, Hoboken, New Jersey, stated that the work done by inspectors in preventing the dilution of milk is important from a commercial rather than a sanitary point of view, as water is in itself harmless. The best work is done when official inspection is extended so as to include the pasture, the stall, and the dairy. Skilled and scientific effort in this direction would prevent the spread of infectious diseases from cattle to man.

A paper was then read by Dr. Paul Redard, of Paris, France, on

THE TREATMENT OF ERECTILE TUMORS BY ELECTROLYSIS.

The writer described in detail the method proposed by Ciniselli de Crémorne, which, with some modifications, he had found satisfactory in a large number of cases in dispensary practice. The operation is moderately painful, and the effect rapid, with no suppuration or scars.

Dr. De Valcourt, of Paris, France, then read a paper on

THE TREATMENT OF TUBERCULOSIS BY SEABATHING.

AFTERNOON SESSION.

Dr. Isaac N. Love, of St. Louis, Missouri, opened the session by reading a paper on

INFANTILE MARASMUS.

He reviewed a class of cases distinct from those caused by tuberculosis, syphilis, and intestinal catarrh. In an advanced stage they present a picture the principle features of which are wasted muscles, prominent bones, a loose and dry skin, and face withered, wrinkled, and wan. Careful study of a large number of such cases had led him to the following conclusions:

1. Infantile marasmus is dependent primarily on torpidity and inactivity of the glandular system, and is aggravated by unsuitable, overabundant, or insufficient food and unsanitary surroundings.

2. It is of the first importance, in treatment, to arouse secretion and excretion, the best remedy being calomel in doses of one-twelfth of a grain, with the free administration of water; both of these agents exciting glandular action, stimulating the secretion of the digestive juices, and promoting diuresis and intestinal secretion.

2. "In the matter of diet, the mother's milk is the best, and some other mother's milk the next best."

4. In extreme cases it is best to administer soluble foods in the form of baths, and to practice gentle friction and massage, with an occasional bath in water containing a diffusible stimulant.

A paper was then read from Dr. William Henry Day, of London, England, entitled

SOME OBSERVATIONS ON HEADACHES IN CHILDREN, AND THEIR RELATION TO MENTAL TRAINING.

The writer considered the characteristics of nervous, frontal, and neuralgic headache, and the condition known as irritable brain. One form or the other is the first and most persistent symptom of the breaking down which follows the mental over-pressure which now prevails in education,

and in the competitive examinations for entrance in every profession and in every branch of the public service. The irritable brain is not infrequently accompanied by myopia, hypermetropia and astigmatism.

Dr. William S. Dennett, of New York, N. Y., recognized the type of headache to which Dr. Day had referred as associated with refractive troubles, as well as the occipito-cervical discomfort associated with muscular insufficiency. It would be well if all cases of incipient myopia were attended with a forewarning headache.

Dr. William D. Booker, of Baltimore, Maryland, then read a paper, entitled

A STUDY OF SOME OF THE BACTERIA FOUND IN THE DEJECTA OF INFANTS AFFECTED WITH SUMMER DIARRHŒA.

Twelve different varieties of bacteria had been isolated. Eleven were bacilli and one belonged to the cocci. Two of the bacilli only liquefy gelatine. Their action on milk is as follows: Some coagulated casein with acid reaction and evolution of gas, one variety caused coagulation with alkaline reaction, one gave the milk a peptonized appearance, other varieties caused no perceptible change.

In guinea pigs, young kittens, and white rats and mice the post-mortem results were fully detailed in the paper, and an interesting discussion followed.

SECTION ON LARYNGOLOGY.

THIRD DAY—MORNING SESSION.

Dr. H. H. Curtis, of New York, N. Y., being absent the paper by him on

SURGERY OF THE NASAL SEPTUM AND TURBINATED BODIES.

was read for him. He classified various deformities of the septum so as to more accurately describe the different operations. Operations on the turbinated tissues were disposed of in systematic manner, and attention was given to catarrhal conditions of the ethmoidal cells.

Dr. F. Massel, of Naples, Italy, sent a paper on

PRIMARY ERYSIPELAS OF THE LARYNX,

which, in his absence, was read for him. It opened by quoting a list of authors who admitted that there was a primary erysipelas of the larynx. It is fortunately a very rare disease, and no good clinical history is given showing the laryngeal appearance. The disease is usually secondary to erysipelas elsewhere on the body; where primary it is found in hospitals where the air is bad, and where the patient's bed is near that of another who has an attack of erysipelas. The disease may begin in the throat and attack the

skin later. In 1885 his attention was called to cases in private families where there was primary erysipelas of the larynx. The cases had not been exposed, to his knowledge, to infection from other cases of erysipelas. There was no manifestation of the disease elsewhere on the body. He noticed one form where the local symptoms were most prominent, and another where there was early collapse. It may extend to the lungs without any external appearance of the disease.

Early symptoms are, difficulty of swallowing and talking, change of voice, with pain; fever is high, and pulse rapid. Epiglottis swollen, mucous membrane of larynx intensely congested and reddened, also much swollen. Narrowing of glottis even to suffocation may occur as symptoms increase in severity, and we find aphonia and dyspnoea, caused by swellings and œdema over arytenoid cartilages and ary-epiglottic folds. The swelling has a way of migrating from one part to another, may sink down on one side and the other become rapidly tumefied. The swelling of a part is preceded by intense congestion. Frequently there is an eruption of blisters or bullæ. These burst and form crusts with mucous and blood. Fever is more or less relapsing, temperature varies from 40° to 88° C., but is not periodical in its changes. Lymphatics are very sensitive, and neighboring glands are swollen and inflamed. After several relapses of temperature, we may have resolution and recovery, or death from asphyxia if tracheotomy is not resorted to, or collapse on extension to the lungs. More apt to extend to the lungs in the aged. In treatment use ice or coil to the larynx, also counter-irritants; use bichloride mercury, one to two-thousand, as a spray. If patient cannot swallow food through a tube when œdema or bullæ interfere seriously with breathing, then scarify, and resort to tracheotomy if necessary. In migrating from one part to another, it may be rapidly fatal so as to give no time for action. The treatment must be expectant and should vary with the symptoms.

Professor F. O. Stockton, of Chicago, Illinois, saw a case of a powerful and healthy man, who came to Chicago for nasal trouble. He contracted what he thought was severe cold, and had symptoms rapidly increasing in severity; pulse, 140; temperature, 103½°, preceded by severe rigors. There was great difficulty in breathing, with aphonia. The epiglottis was thick and red, so also were the arytenoid and folds between, and thickly covered with small blebs. There was more or less œdema over the arytenoids, with numerous blisters. The Ven-

tricular bands covered the true vocal cords, and almost completely closed the glottis. He tried intubation, which worked perfectly, to relieve dyspnoea; but the redness of the erysipelas extended over the pharynx to post-nasal space and through the nose, then over face and eyes to the forehead. The patient recovered.

Dr. Benham, of Pittsburgh, Pennsylvania, thought it more common than is usually supposed, and there is no disease more distressing or more likely to tax the physician's resources much more. He has never seen a primary case of it. Instant relief sometimes results from scarification. He cannot understand the sudden recovery that sometimes occurs.

TWENTY YEARS OF LARYNGOLOGICAL WORK IN THE CITY OF MEXICO

was the title of a paper sent by F. Semeleder, M. D., of Mexico. It treated chiefly of the difficulty of getting books and instruments early in his career, and described how long laryngology was unknown there. He gave a list of prevalent troubles, and the various operations which he had performed.

PRESENT STATUS OF THE GALVANO-CAUTERY IN THE TREATMENT OF THE DISEASES OF THE UPPER AIR-PASSAGES, ILLUSTRATED BY INSTRUMENTS AND THE DESCRIPTION OF CASES,

was the title of a paper by Professor F. B. Eaton, Portland, Oregon.

The author being absent, the paper was read and the instruments exhibited.

Inventive faculties are stimulated continually to devise more radical methods of treating nasal catarrh. It is best to avoid over-medication, over-treatment. He considers specialists a necessary evil. There will be a reaction and less operative interference result. He defends the galvano-cautery against charges of its being cumbersome and expensive. It is only relatively so. It is never disappointing in its results, but surpasses one's expectations. It is not as much disliked by patients as acids, and it is easier to regulate the effect. Patients fear it less than knives, saws, and snares. There is little or no pain when twenty per centum solution of cocaine is used. The operation is clean, with no hæmorrhage; one can remove small exostoses and cartilaginous masses, but not large ones. A saw is better for them. Puncturing them may cause enlargement and fatty degeneration. He treats hypertrophies by puncture and incision with cautery, punctures and moves the point freely in the mass, so as to cause contraction without destroying the external tissues. His battery and various electrodes were exhibited. He has in operating used rhigoline, after Dr. Jarvis' method.

Dr. R. H. Thomas agreed with Professor Eaton's conclusions as to the general applicability of galvano-cautery, but did not consider it as successful for large hypertrophies as the cold snare. He considered twenty per centum of cocaine as far from safe for indiscriminate use. He has seen too many unpleasant effects from even weaker solutions. He never needs over ten per centum as the highest.

SECTION ON PUBLIC AND INTERNATIONAL HYGIENE.

THIRD DAY.

The president read a paper from Dr. B. W. Richardson, of London, England, on

THE GROWTH OF PREVENTIVE MEDICINE IN GREAT BRITAIN.

Dr. Dominigos Freire, of Rio de Janeiro, Brazil, read a paper

ON VACCINATION IN YELLOW FEVER,

the tenor of which was that the disease can be prevented by inoculation with attenuated virus. The paper was accompanied by microscopic specimens of the microbe of yellow fever.

Dr. Freire being asked what was his theory concerning the attenuation of the virus of yellow fever, answered, by oxidation through the red corpuscles of the blood, and the proper or improper medium into which it is placed; but, he added, all this is *as yet* only conjecture.

Dr. Bailhache, Marine Hospital Service, asked if vaccination in one family arrested the progress of the fever in that family?

Dr. Freire answered in the affirmative, stating that in families of ten and fifteen members, living in *one hut*, if vaccination was practiced after the outbreak of the fever among the members not yet affected, that this arrested the further progress of the scourge; whereas, where it was not practiced they all were stricken down with the fever and many, if not all, died.

SECTION ON PSYCHOLOGICAL MEDICINE AND NERVOUS DISEASES.

THIRD DAY—MORNING SESSION.

Professor Mendel, of Berlin, Prussia, read a paper on

THE ORIGIN OF THE UPPER FACIAL NERVE, which was illustrated with numerous sections of the brain.

The paper was discussed by Dr. E. C. Spitzka, of New York, N. Y.

Dr. E. A. Homen, of Helsingfors, Finland, read a paper on

HISTOLOGICAL ALTERATIONS FOLLOWING AMPUTATIONS IN THE PERIPHERAL NERVES, THE SPINAL GANGLIA, AND THE MARROW.

Dr. Homen had two sets of observations, one relating to the effect on the spinal cord after amputations in dogs. In some of them he amputated the hind leg below the knee, in others the hind leg at the thigh, in others the fore leg at the shoulders. He kept some alive three weeks, some for months, and some for a year. He found that the atrophy, besides involving those limbs whose atrophy has been stated by previous observers, chiefly the posterior column, also involved a special cell-group of moderate or small-sized cells. This cell-group was atrophied when only the posterior roots were eliminated. He concluded that they had a sensory function. In most of his cases the ascending degeneration was very slight and difficult to identify. The second set of his observations related to the changes in the nerve-stumps, and corroborated those of Spitzka and others.

Dr. Homen presented some photographs illustrating the points he had stated in his paper.

Dr. E. C. Spitzka, of New York, N. Y., asked Dr. Homen more particularly as to the location of the degenerated area. He referred to the fact that in some cases a part in others the whole of the hindleg, in still others the whole of the foreleg, had been amputated; the area of secondary ascending degeneration must have been different in each case. It seemed to him that in the last-mentioned case the degeneration should be in the comma-shaped field, in the former two in special parts of the column of Goll.

Dr. Homen replied that, on the whole, he supposed that expectation would be realized, but where he had succeeded in tearing out special posterior roots their number had been too few, and the consequent degeneration too slight, to permit of very accurate and positive location.

Dr. Otto's paper on

NUCLEUS-STAINING BY ANILINE DYES

was next read.

Dr. J. Langdon Down, of London, England, presented a paper, entitled

CASES ILLUSTRATING THE ASSOCIATION OF THE PROW-SHAPED CRANIUM WITH NEUROTIC DISEASE,

and cited several interesting cases which had come under his observation.

THIRD DAY—AFTERNOON SESSION.

The afternoon session was almost entirely occupied in the discussion on

SYPHILIS IN ITS RELATIONS TO INSANITY.

Dr. Savage, of London, England, opened the discussion. He said there were but few new facts to add. The object of his paper was clinical, not statistical. We have to sum up experience after the syphilitic wave of fashion has passed.

His experience resembled that of most others, that severe cases of brain-syphilis follow slight evidences of secondary trouble. Local syphilitic lesions often form the starting-point of general degenerations. He was unable, in many cases, to draw any defining line between true general paralysis and degeneration following cerebral syphilis. He believes that in some cases general paralysis depends on syphilis for its origin; but does not believe it to be anything like a universal cause. Idiocy, imbecility, and moral perversion due to congenital syphilis, he thought, was rare; most men connected with idiot asylums consider that but few idiots have congenital syphilitic histories. Other physicians, like Dr. Bury, think a fair number of cases are due to this disease. Many syphilitic children die in utero and early life. Syphilis may produce idiocy by causing disease of the envelopes of the brain, or of the brain itself, or by causing destruction of the organs of sense. Syphilis may cause epilepsy in children, and thus lead to idiocy. Some children of syphilitic parents are morally weak, and others break down in critical periods in development. To this last class belong the children of some general paralytics.

Discussion then followed upon these two points in Dr. Savage's paper.

Dr. E. D. Ferguson, of Troy, New York, instanced a case of general paralysis in a male patient who, near the time of his marriage, had contracted syphilis; which, on account of his previously correct life, was not suspected, and went on to a considerable extent before specific treatment was resorted to; when syphilis was finally suspected and treatment actually entered upon, the patient had become insane. At all times after he had contracted the disease, he had suffered from great mental depression and mortification; he could never get over the sense of shame. At the post-mortem there were found gross lesions of the membranes of the brain and of the bones of the skull.

Dr. Hurd, of Pontiac, Michigan, had no doubt but that a true syphilis will produce the simpler psychoses like mania and melancholia. He cited a case that had come under his observation, of what appeared to be acute mania, and a short time after admission it was discovered that

she suffered from syphilis. She had the syphilitic rash, the rise in temperature, and these and other symptoms lasted several weeks. She was at once put upon treatment, with the effect of alleviating the symptoms, and there was a corresponding improvement in her mental condition. There was at all times, however, a tendency to relapse of the syphilitic troubles. The disease went on and displayed characteristic constitutional symptoms. After two or three years' treatment, the syphilitic trouble was finally in such a state of abeyance that the girl was sent home on trial, and has remained at home nearly a year. He had no doubt but that she would sooner or later be returned to the asylum, in consequence of the syphilitic trouble lighting up again.

Dr. C. H. Hughes, of St. Louis, Missouri, said syphilis manifests this peculiarity in the neural tissue: it produces abneural changes rather than changes within the structure of the nervous texture. This explains the facility with which syphilitic mental aberration is removable under adequate and vigorous specific treatment. He had seen syphilis often remain without manifestation for years after insanity, and finally develop in locomotor ataxy. We know there is such a thing as syphilophobia, and that it may exist without the pre-existence of any syphilitic poisoning. Syphilitic general paralysis, he had no doubt, was exceedingly common as the result of this poison.

Dr. W. W. Godding, of Washington, D. C., said he had never seen any mental symptoms whereby he could diagnose a case as syphilitic insanity. He cited the interesting case of a girl in his hospital, who came to him about nine months since in the most advanced stage of dementia. Syphilis was only suspected after she had been in the hospital some time, and had remained profoundly depressed. She was placed at once upon specific treatment, with the effect of bringing about an immediate change for the better, and she is to-day in a very comfortable condition of bodily and mental health.

Dr. E. C. Spitzka, of New York, N. Y., referred to a febrile condition in secondary syphilis, which is complicated with acute delirious mental disturbance. This he believed was a very rare thing. He had seen one case seven years ago, and had not seen anything written upon the subject since that time. The discovery had been made by Finger that during the roseola there was abolition of the knee-jerk. Finger had reported sixty-one cases in which the knee-jerk was absent.

Dr. E. N. Brush, of Philadelphia, Pennsylvania,

said that two cases of syphilis were now under his observation, which served to confirm the statement of Finger. One of these cases had a short time ago a remission of symptoms of acutely maniacal excitement. He had been quiet and coherent, had parole of the grounds. For five days was very much excited, and there was a slight return of the knee-reflex, which had previously been entirely absent. He tore his clothing, had hallucinations, and disturbances of sight and hearing. Dr. Brush did not believe we should adopt the term syphilitic insanity.

Dr. T. W. Fisher, of Boston, Massachusetts, cited the case of an officer in one of the hospitals at Boston, who contracted syphilis, and suffered from a great sense of mortification, and went into a state of apprehension and sleeplessness, and finally developed delusions of suspicion. Under asylum treatment he recovered after the syphilitic symptoms had disappeared.

Dr. Brown, of Barre, Massachusetts, was glad to be able to support the ground taken by Drs. Savage and Down, in reference to very few imbecile children having congenital syphilitic histories. In his experience of thirty-five years he had noticed but one and one-half per centum.

Dr. Savage said that he agreed with Dr. Godding, that there was no such thing as syphilitic insanity. One might speak of a specific cause of asthma, and give it a title accordingly. The less said about syphilitic insanity the better in his opinion. As to the cases recorded of the febrile disturbance of constitutional syphilis, he was glad to note that it was, after all, not so uncommon, although it had hitherto been hardly recognized.

Dr. Savage then proceeded to the next branch of the discussion,

INSANITY DUE TO ACUTE SYPHILIS.

Such cases are rare. Probably some acute cases follow the delirium which may follow with the rash. Many lunatics exhibit venereal diseases contracted while insane. Insanity may follow the onset of secondary symptoms of the more severe type—thus, with optic neuritis, with ulcerations about the face—or it may appear with the onset of local paralysis of the third or other cranial nerve. It may occur with the neuralgia or sleeplessness of syphilis. The disfigurement may cause insanity. There are cases in which syphilis has acted as a moral cause and has set up a form of hypochondriasis.

Dr. Savage next passed to
SYPHILIS PRODUCING EPILEPSY, WITH OR WITHOUT INSANITY.

The epilepsy may be the chief symptom or

only a sign of widely spread disease, or it may be a symptom of general paralysis, or of locomotor ataxy. He said cases of epilepsy had come under his observation with a syphilitic history, in which he had not been able to find coarse lesions, as had been claimed to exist by Ferrier and Hitzig.

Dr. Hughes asked Dr. Savage if in his post-mortems he had been unable to find foci, either vaso-motor or vascular changes, microscopically.

Dr. Savage answered that the arterial disease was so general that he had not been able definitely to say that on the left side there was more arteritis than on the right.

Dr. Savage also said there was a good group of cases in which

PROGRESSIVE WEAK-MINDEDNESS

follows constitutional syphilis. It may be preceded by some motor symptoms, by either the ocular motor trouble, a monoplegia or hemiplegia, in one by aphasia, and in another with other motor trouble. There was another group in which sensory trouble, some temporary loss of vision or taste or hearing, some aphasia, which may be purely muscular, or some temporary giddiness may be the first symptom, which is followed by progressive degeneration, which is not of the same kind and not to be grouped with true general paralysis of the insane depending upon syphilis.

Dr. Channing asked Dr. Savage how he would classify the cases just described.

Dr. Savage replied that he would classify them as organic dementia; that seemed as good a classification as any.

Dr. W. Channing, of Boston, Massachusetts, asked if the term syphilitic dementia could be used, if there were sufficient cases to justify it.

Dr. Savage preferred organic dementia of syphilitic origin.

Dr. Gundry next discussed the question, and cited the case of a most respectable and highly connected young lady whose friends had noticed in her a growing tendency to *double entendres*, to slight smuttiness in conversation, and who were at a loss to account for this. He suspected syphilis, but was not for a long time listened to. Finally, after getting the patient on specific treatment, these morbid peculiarities disappeared.

Dr. Savage next discussed

THE GENERAL PATHOLOGY OF CASES OF INSANITY WITH SYPHILIS.

There may be a moral element in some cases, this being of two kinds, either producing hypochondriasis or true melancholia. Syphilitic cachexia may cause melancholic symptoms.

Disease of the vessels, small or great, may produce different sets of symptoms.

Gummata are not so common as one would have expected. Inflammation of the membranes in both young and old may cause disease, such as idiosyncrasy or acute insanity.

Whether there are any changes in the neuroglia is doubtful. There are changes produced in the nutrition of the various parts, leaving a form of weakness which may act as a cause of fresh changes that may run an acute or chronic course.

Dr. Spitzka's experience coincided with that of Dr. Savage as to the absence of gummata.

He corroborated the conclusions of Dr. Savage. The connection between syphilis and tabes dorsalis was still a mooted question. He gave the case of an actor who had been under his observation for some time. This patient has abolition of both knee-jerks. His disease was at times controlled by treatment, and then recurred. He had had in the course of one day fifty or sixty attacks of a peculiar kind of *petit mal*, in which he lost consciousness for a moment while coming upon the stage oftentimes, but so briefly that he could recollect himself. In one case, where he had to cross a foot-bridge, he had an attack in the course of passing over, but went on as if nothing had happened, the *petit mal* losing its character as a loss of consciousness and becoming replaced by a peculiar sensory disturbance. He found that, accompanied by the prodromal feeling, all the faces of the audience were exactly the same. This sensation passed like an electric flash. He still has these peculiarities, although they are becoming rarer. They are a matter of interest to the patient himself, and he observes their course and peculiar symptoms.

After the reading of a paper by Dr. Ingram, of Washington, D. C., on

GUNSHOT WOUND OF THE SPINAL CORD,
the section adjourned until Thursday at 11 A. M.

GENERAL MEETING.

FOURTH DAY.

The congress convened at 10 A. M.

Dr. A. L. Gihon, U. S. navy, offered the following resolution, which was adopted:

Resolved, That the President of the Congress be authorized to appoint a committee, to consist of an equal number of members from each nationality represented in the Congress, for the purpose of selecting the place of meeting of the Tenth International Medical Congress, to be held in the year 1890; which committee shall report

on Friday morning, immediately before the address of Dr. Brandford.

The following committee was appointed to name the next place of meeting of the congress:

Argentine Republic—Dr. Villa, of Buenos Ayres.

Austria-Hungary—Dr. Farkas, of Buda-Pesth.

Belgium—Dr. Servais, of Antwerp.

Brazil—Dr. Freire, of Rio de Janeiro.

China—Dr. Boone, of Shanghai.

Egypt—Dr. Grant, Bey, of Cairo.

France—Dr. Landolt, of Paris.

German Empire—Dr. Martin, of Berlin.

Great Britain—Dr. Pavy, of London.

Italy—Dr. Semmola, of Naples.

Japan—Dr. Saigo, of Imperial Navy.

Mexico—Dr. Alvarado, of Mexico.

Roumania—Dr. Monolescu, of Bucharest.

Russia—Dr. Reyher, of St. Petersburg.

Spain—Dr. Lalearda, of Seville.

Sweden and Norway—Dr. Tillman, of Halinstadt.

Switzerland—Dr. Cordes, of Geneva.

Turkey—Dr. Post, of Belrút.

United States—Dr. Gihon, United States Navy.

Dr. P. G. Unna, of Hamburg, Germany, then delivered a general address on the

RELATIONS OF DERMATOLOGY TO GENERAL MEDICINE.

He endeavored to prove that every general practitioner has the greatest interest that dermatology should be more deeply and extensively studied. Dermatology, as a special branch, is still young, and not yet past the state of formation. The immense difficulties in the way of the study of diseases of the skin, which have up to this time disturbed its continuous development, are in great part well founded, as well in the external position of this organ as in its complicated structure. The author demonstrated these complications in detail, showed the differences in the appearance of the symptoms according to regional differences of the skin, the changes in symptoms in the course of the development of skin diseases, the varieties produced by external agents, the influence of climate, season, nature of countries, of races, sex and age. Among the external agents the parasites, according to our present knowledge, occupy the most prominent place.

These difficulties will in future be overcome only by minute analysis of each of the several symptoms of skin diseases. All progress in this direction will be of the greatest value for gen-

eral pathology and therapeutics, because these facts are proved in the human tissue by means of the naked eye. Dermatology, studied properly, will advance all other parts of medicine—internal medicine as well as surgery—occupying a middle ground between them. Dr. Unna recommends, in place of experiments on animals for pathological and therapeutical experiments, to use the human skin, and showed by several examples how this method has led already to the knowledge of new facts. The endowment of new chairs and of separate private laboratories is not sufficient for a thorough investigation of skin diseases. He recommends the establishment of a central institute, where noted scientists could work together, where all means and methods of study could be condensed. Then dermatology can be raised to the rank of one of our most important specialties in medicine, and contribute largely to the progress of knowledge in all branches. Finally, he expressed the hope that the United States, always so liberal in the promotion of science, will be the first to develop this ideal.

SECTION ON GENERAL MEDICINE.

FOURTH DAY—MORNING SESSION.

Dr. Ephraim Cutter, of New York, N. Y., read a paper entitled

MORPHOLOGY OF RHEUMATIC BLOOD, and illustrated it with stereopticon slides. He attributed the increased force of cardiac, with consequent exhaustion and inflammation, to the great adhesiveness of the blood.

Professor Mariano Semmola, of Naples, Italy, read a paper on the

PATHOGENESIS OF ALBUMINURIA.

He gave the results of original investigations made at the University of Naples.

Dr. Nunn discussed the paper, speaking favorably of the albumen diet.

Dr. Cutter, of New York, N. Y., regarded the diagnosis of Bright's disease as imperfect unless there are albumen and casts.

NOTES ON THE TREATMENT OF PHTHISIS, MORE PARTICULARLY THAT BY INTRA-PULMONARY INJECTION.

R. Singleton Smith, M. D., Bristol, England, read a paper on this subject. Since the last International Congress at Copenhagen, in 1884, numerous attempts have been made to do more than had previously been attempted for a disease in which the *vis medicatrix natura* does so little. The reader of this paper briefly summed up the various methods which have been recently suggested since the discovery of the bacillus of tubercle, and expressed his belief in the possi-

bility of benefit by treatment directed toward the destruction of the bacillary growth. He reported the result of his experience with regard to gaseous rectal injections, and said that in consequence of the absence of all indications of benefit he had given up this method entirely. He alluded to the work done by Professor Pepper, of Philadelphia, Pennsylvania, and Drs. Beverly Robinson and White, of New York, N. Y. In carrying out the method of intra-pulmonary injections suggested by these and other workers, he had met with partial success in a series of cases reported in the *British Medical Journal* in 1886.

In consequence of the proved utility of iodoform in chest disease, as shown by a steadily increasing mass of evidence since its first introduction for this purpose by Professor Semmola, in 1878, and supported by a series of cases presented to the International Congress of 1884, in which the author found increase of weight, improved appetite, diminution of temperature, and general improvement, under the administration of iodoform given by the alimentary canal, it was thought that iodoform would be the best substance to employ for injection into the parenchyma of the lung. The clinical utility of iodoform being the ground on which its use for this purpose has been founded, the evidence is not shaken by any statistics as to the comparatively feeble powers of the drug as a germicide.

The insolubility of the drug is the chief difficulty; various solvents have been used, but with only partial success. Ether is objectionable, because of its effects on the brain; giddiness and other feelings of discomfort rather alarm the patient, and give rise to an unwillingness to have a frequent repetition of the injections. Eucalyptus oil is irritating; two cases were mentioned in which acute pleuritis, with much pain, rise of temperature, and effusion had followed the injection of an iodoform solution in oil of eucalyptus. The vaseline oil, either alone or in combination with eucalyptol, had also been used, but the author considers the question, what is the best fluid to inject, to be still unsolved. He did not advocate the use of solutions containing free iodine or bichloride of mercury, and he would not in future employ any fluid for injection into lung which had not previously been tested hypodermically; if it gave rise to much inflammatory irritation in the subcutaneous cellular tissue he would not venture to inject it into the lung. He was of opinion that injections into cellular tissue might possibly be of some little service, although there was as yet not much reliable evidence on this point, but

they would serve as a reliable test whether any given fluid was suitable for deep intra-pulmonary injection.

It is true that if iodoform be of use, as the clinical evidence indicates, then it is likely to be of far greater utility when injected, even in small quantity, into the focus of a diseased patch than when given in larger doses diffused throughout the whole body. Such injections have been shown to be not especially hazardous. Even the cases in which pleuritis has occurred had recovered completely from the attack in the course of a few days, and possibly the pleuritis was due to the failure of the fluid to pass beyond the pleural cavity into the lung-substance. Nevertheless, the author would not advocate the use of such injections in cases which were hopeless, neither would he employ them in cases where other and less active measures were accomplishing the object in view. He concluded his paper by urging perseverance in spite of failure, and by expressing his belief that what as yet was only a tentative investigation would ultimately result in numerous and signal successes.

Dr. Truax, of New York, said that he had little faith in iodoform, as he had cultivated the bacillus tuberculosis in its solution.

AFTERNOON SESSION.

Dr. Pavy, of London, England, spoke on

DIABETES.

This disease has always been regarded as an inscrutable one. There are still many points open for earnest study and patient investigation. The nature of the disease is that of faulty disposal and assimilation of food elements. Foods taken into the body are classed as nitrogenous, fatty, and the carbohydrates. It is this latter class that especially concern us in diabetes. Starch-dextrine, lactic and cane sugar go to make up this group, and each has an equal action, when ingested, in causing the condition of diabetes.

Normally the carbohydrates are disposed of in the portal vein, whence they are carried to the liver and there assimilated. Experiments in which defibrinated blood or oxygen have been injected into the portal vein have been followed by marked evidences of sugar in the urine. Similar results have been produced in animals by forced respiration, thereby supersaturating the blood with oxygen. Vaso-motor paralysis of the hepatic vessels, by causing an excess of blood, prevents the proper deoxygenation of the blood, and similarly causes sugar to be present in the urine. This condition allows the carbohydrates

to be converted into sugar and pass through into the general circulation.

In the celebrated experiments of Bernard, in puncturing the floor of the fourth ventricle, he also noticed a vaso-motor paralysis of the hepatic vessels. It is noticeable that in those cases of vaso-motor paralysis of the chylopoietic system where there is a red tongue the disease is more severe, undoubtedly owing to the fact that the paralysis has extended more generally throughout the circulatory system.

In health there is only a faint trace of sugar in the blood and the urine. The latter is always a reliable index as to the amount of sugar in the blood. In diabetes the sugar reaches the blood directly, without going through the process of assimilation in the liver. In health, sugar is stopped before it enters into the general circulation, but in diabetes it is found in the blood directly in proportion to the quantity of carbohydrates taken. Sometimes even in health there is sugar in considerable quantity in the urine, in cases where there has been taken very large quantities of the carbohydrates, showing that there is a normal limit to the assimilative power of the liver, which, if exceeded, will result in a diabetic condition. The liver is a fat, rather than a sugar-producing organ, converting animal starch into sugar and then into fat. The liver is different from other organs in that it has small arteries and large veins. The contents of the portal vein should be in a decidedly venous condition, otherwise we will get sugar into the general circulation.

Diabetes is of a neurotic origin, and it is well established that nervous conditions influence in a material manner the condition of the patient.

In considering these cases the first thing to do is to test for sugar in the urine, and in order that we may fully appreciate the progress of the case this test should be a quantitative one.

In selecting urine for examination it is necessary to procure both an evening and a morning specimen. It frequently occurs that sugar is only present directly after the taking into the body of carbohydrate foods. It is owing to the fact that specimens of urine are procured at different times and after different conditions of diet that physicians differ so often in the diagnosis of diabetes.

Among the various tests for sugar probably the most accurate is the copper test, in the form of Fehling's solution. The great objection is that this solution will throw down a precipitate on boiling, which is very liable to mask the test. In order to obviate this I have had pellets made of the solid ingredients of this solution, in an anhy-

drous form, such as can be at any time dissolved in water for use.

When patients come to us we should not ask them, but tell them, what they have been eating or drinking. This can be accurately done by the quantitative test. This is best and most easily accomplished by the decolorization test, which is done in the following way :

At the bottom of a long graduated pipette is attached a tube running into a flask containing a given quantity of a solution of sulphate of copper, differing from Fehling's solution only in containing ammonia and potash instead of the latter alone (in order to prevent the precipitation of the oxide); at the upper part of the flask is placed an escape-tube. At the rubber tube through which the urine escapes into the flask is placed a compressor controlled by a screw, which regulates perfectly the flow of the urine. After the copper solution is brought to a boiling point, by a flame placed underneath the flask, the urine is allowed to enter the flask, drop by drop, until the copper solution is exactly decolorized. By reading upon the graduated pipette the amount of the urine which has been necessary to decolorize the known quantity of copper solution, we can form a proportion by which an accurate estimate can be made of the contained sugar. By this means we can follow the course of the disease even more accurately than the clinician who, with his stethoscope, watches, from day to day, the progress or retrocession of pulmonary disease.

It is well to note, in passing, that in diabetes we sometimes find albumen in the urine, and this is often present just in proportion as the patient improves or gets worse. A test for albumen, which has no known fallacy, is that with citric acid and the ferrocyanide of sodium. The objection to the nitric-acid test is that it may precipitate either uric acid or the oleo-resins. In the above test, if a pellet of citric acid is dissolved in the urine and boiled, we may then get a precipitate of uric acid, but upon the addition of the ferrocyanide of sodium the solution invariably clears up unless albumen be present.

In considering the disease itself, we find it has different grades and intensity. The liver, in health, has not unlimited control in the assimilative power over the carbohydrates, and diabetes may be said to exist when that power is below the ordinary. When a person first comes to have diabetes, as we have stated, it is through faulty assimilation; it does occur, however, that as the disease progresses, the sugar is formed from the tissues themselves, as is proved by its constant presence when the patient is upon a strictly meat diet.

Age influences greatly the occurrence of the disease. Out of 1,360 cases tabulated, forty-five per cent. occurred between forty and sixty years of age. Age also affects prognosis; young subjects rarely recover, the disease ordinarily terminating in two years. In old people the prognosis is more favorable, many recovering. One reason, possibly, for the tendency of children to do badly, is that they take unsatisfactory care of themselves, while elderly persons are oppositely inclined.

In treating young subjects we must try merely to stay the disease; we cannot stop it. We take away the sugar, the patient temporarily improves, and believes himself cured. He is borne up only by false hopes.

In young subjects it seems to have a progressive character, not unlike progressive muscular atrophy, or of loco-motor ataxia.

For elderly patients we can do much. Appropriate diet is absolutely essential.

Dr. Herrick, of Cleveland, Ohio, asked whether Dr. Pavy considered the condition of the urine the objective point in the treatment, or did he aim his treatment directly to the abnormal condition in the portal and hepatic circulation.

Dr. Pavy said that he looked upon the lessening of sugar as an evidence that the assimilative power of the carbo-hydrate is improved. The urine is an index of sugar plus the power within.

Dr. Truax, of New York, N. Y., asked if Dr. Pavy had found where acetic ether was present that death followed quicker.

Dr. Pavy replied that he was not a believer in acetonaemia.

Dr. Stockman read a paper for Dr. R. W. Phillips, of Edinburgh, Scotland, entitled

THE ETIOLOGY OF PHTHISIS.

He claimed that experiments go to show that ptomaines are the principal etiological factor in phthisis. In experiments where the ptomaines have been injected the animals give all the characteristic symptoms of phthisis, such as sweating, great depression, etc.

Dr. Phillips sent with his paper a tabulated report of experiments with injections of atropine, which he claims counteracts the action of the ptomaines.

Dr. Herrick, of Cleveland, Ohio, said that he believed that the deposits in the lung were excretions from the blood of material which the natural eliminatives were unable to dispose of. He did not believe the bacillus tuberculosis to be the cause of phthisis *ipso facto*.

Dr. Whitmarsh believed that a very large number of the race have tuberculosis; it often lies

dormant, yet the germ is there, like fuel, only needing a match to set it on fire. The early stage of phthisis is curable, but unfortunately that stage is too often overlooked.

Professor Arnold, the President, thought that Koch still had the best side of the argument. The crucial experiment has been made, that when inoculations are made with sputa containing the bacillus tuberculosis, we get phthisis, but do not get phthisis under any other circumstances.

Dr. Truax, of New York, N. Y., called attention to the additional evidence of the power in the bacillus tuberculosis, viz., that repeated cultures of the germ still retain the power to cause phthisis.

The Secretary read a paper by Dr. W. B. Nefel, entitled

SOME CONSIDERATIONS ON THE PATHOGENESIS OF DISEASES OF WOMEN.

He endeavors to prove, by experiments upon the lower animals, that compression of the chest will cause phthisis. Although his experiments did not prove this, they did show that they would cause albuminuria, which he attributed to venous stasis.

From these experiments he made analogous comparisons of the deleterious effects of wearing corsets and high-heeled shoes.

He suggested that the Congress appoint a commission to investigate the various modes of feminine dress of the different nationalities, and select such forms as are both practical and useful. He thought that in this way, with the sanction of the profession, some impression might be made upon the female sex to change their present mode of dress.

Dr. Herrick thought that experiments upon the lower animals were of little use in forming opinions of disease in the human subject.

Dr. Price, New York, N. Y., agreed with Dr. Herrick in the main. He did not think that bacilli were the cause of phthisis.

Dr. Finlay, Mansfield, Ohio, asked if statistics showed that the difference in dress caused a corresponding increase of mortality among women.

Dr. John Ege, Reading, Pennsylvania, thought it very necessary that each air-cell should have free play in performing its function, otherwise it would be a favorable soil in which the bacillus could grow. He believes in the germ-theory of phthisis.

SECTION ON GENERAL SURGERY.

FOURTH DAY—MORNING SESSION.

Dr. Burney read for Dr. Richardson, of St.

Louis, Missouri, a report of a case of gastrotomy for the relief of foreign bodies in the throat. The speaker also mentioned a case in which he himself had operated, a man having swallowed an ordinary plated case-knife, which he presented at the meeting. While playing with his family the knife slipped from his fingers as he pretended to swallow it, and really did. The writer did not believe in the continued suture in this operation, but the interrupted, one and one-eighth of an inch apart.

In discussing Professor Dennis' paper, Dr. Myers remarked that MacEwen used only digital pressure in the amputation of the thigh-joint.

Professor MacLean, of Detroit, Michigan, said that Dr. Dennis' method was the principal point in the paper; he had had the best results in Lister's abdominal compressor.

Dr. Weeks, of Maine, stated that he used the ordinary rubber-bandage with a compress, the bandage being four thicknesses and secured much the same as Dr. Dennis'.

Dr. Manly, of New York, N. Y., thought it difficult to find anything to take the place of Lister's compressor.

Dr. Reyher, of St. Petersburg, Russia, said he had had some unpleasant experiences with Listerism. He was in the habit of first excising the head of the bone, then piercing the thigh and ligating in two parts, then amputating the legs; the flaps were then under the control of the surgeon, and he could work at leisure, but he usually put a rubber-bandage above.

Dr. N. Smith thought that the less tissue left the better, and that he was satisfied with Brodie's operation, the anterior and posterior skin-flaps; as for controlling hæmorrhage, the hands were best; he had not had much experience with the rectal staff.

Dr. Springler, of Dresden, Saxony, remarked that about one-fifth of these cases healed primarily; one-fifth in about three weeks, and one-fifth in about two to three years, and then perhaps would die from the amputation and the prolonged drain on the system.

In discussing aspiration of the hip-joint, Dr. Lange, of New York, stated he thought the conclusions on the subject were rather premature.

The question was asked if the fluid were examined under the microscope for bacilli; also whether the fluid was removed as a curative measure or only to relieve pain.

To the former question Mr. Owen replied it was not, and as to the latter it was both; replying that if you are in doubt as to these cases, put in your trocar and cannula; you can do no harm and may do good.

In regard to Dr. Garmody's paper, Dr. Burney stated he had a case of a boy whose skull was fractured, and who shortly afterward was taken with maniacal attacks of screaming epilepsy. He was trephined and two buttons of bone were removed; a second operation was performed and the dura mater incised, when immediately a large quantity of cerebro-spinal fluid gushed out, which very much alarmed the speaker; sponges were quickly placed in the cavity: subsequently the wound was sewed up. Since that time he has gradually improved.

Dr. Manley, of New York, N. Y., read a paper on a case of

GUN-SHOT WOUND OF THE LARGE INTESTINE,
WITH A SUCCESSFUL RESULT BY LAPAROTOMY.

The patient was operated on twice. The speaker considered that opening of the peritoneal cavity of a man was far different to opening that of a woman, and liable to more risks; the breathing of a man is largely abdominal, while that of a woman is almost entirely thoracic; the incision in the man should not be a bit larger than is necessary, because of his laborious work being liable to produce ventral hernia after recovery. For exploratory operations he made the median incision, but thought there might be exceptions to this rule. In regard to the drainage-tube in these gun-shot wounds of the abdomen, he thought there was no need of them when the peritoneal cavity was healthy and laparotomy was performed soon after the injury, and although he had put one in, in the case spoken of, he should not do it in the next one. Of course there might be exceptions, but he believed the tube was a source of irritation and more liable to produce hernia.

AFTERNOON SESSION.

Dr. Robert Newman, of New York, read a paper on

THE USE OF THE GALVANO-CAUTERY SOUND, particularly in hypertrophy of the prostate gland, with report of cases. The frequency of the application of the cautery, he stated, would depend much on the condition of the patient, but it averaged about from every three to six days; the cautery was not to be red hot, but simply to show a bright light. The apparatus was exhibited to the section. The advantages claimed are that there is no hæmorrhage, the healing is more rapid, and there is no septicæmia. Out of these cases 91 per centum are made comfortable and given a new lease of life.

Dr. Carnochan, of New York, N. Y., presented a rare specimen of

BONY UNION OF THE NECK OF THE FEMUR WITH-
IN THE CAPSULE,

after fracture, occurring in a woman seventy years of age. As she had plenty of means she had every attention. She was kept in her fracture-bed for nine months, rest being the method of treatment. The value of the specimen was very great, especially in courts of law.

Dr. F. Lemoyne, of Pittsburg, Pennsylvania, presented some drawings of an united fracture of the femur, and history of a successful case in which he had applied his method of treatment, viz.,

DOUBLE SPLICE AND WIRED CLAMPS.

The treatment has been successful in three cases, two of the humerus and this one of the femur. The bone was cut down upon and the fragments found to be overlapping nearly three inches. The ends were sawed off, the upper fragment in the form of a wedge; from the lower one a wedge-shaped piece of bone was removed, so that the upper fragment fitted into it. A hole was drilled in both bones about one and a half inches from the fractured ends. A stiff, flat steel bar, with a prong at either end, was placed lengthwise on the surface of the bone, so that the prongs were inserted into the holes; a stout piece of wire was then passed around the clamp and femur at either end, and twisted close up, holding the clamp in position. The wires and clamp remained there nine weeks, when the wound was reopened and the clamp removed. The bone was firmly united, but the limb is two and a half inches shorter.

Dr. Manley, of New York, N. Y., stated that he had had considerable experience in wiring bones, and thought the bones when lapping very much should be wired at the first; he always left the wires in, as they did no harm. In one case of compound comminuted fracture he had followed this method and secured perfect union.

Dr. Lemoyne remarked, he thought that his method was original, everything else had failed in the case of one of those reported who had undergone a number of operations previously. In all of his cases so treated he had met with success; he did not believe in wiring in primary fractures.

Dr. Gibson exhibited some wire extension splints for fractures at or near the joints; he had used them since 1879. They were a modification of the wire splint of Dr. Nathan R. Smith.

Dr. Meyers remarked that he thought the day of extension, except in compound fractures, had gone by; he was very well satisfied with plaster-of-Paris board, or some simple and light dressing.

Dr. Gibson replied that he wished it understood that he did not use this splint in all cases, but for those fractures at or near the joints.

In discussing Dr. Manley's paper, Dr. Quimby, of Jersey City, New Jersey, stated he thought in many cases of wounds the tubes were left in too long. He quoted one case of laparotomy in which no tubes were introduced. Death followed the operation; the wound was reopened, and the peritoneal cavity found perfectly dry.

Dr. Manley concluded by saying that in ovariectomy, where substances were removed, it was different, but in gunshot wounds he considered the tubes injurious.

SECTION ON MILITARY AND NAVAL SURGERY AND MEDICINE.

FOURTH DAY—MORNING SESSION.

Dr. J. D. Bryant, of New York, N. Y., being absent, his paper entitled

ON THE CAUSES AND TREATMENT OF ERYSIPELAS, WAS READ BY TITLE.

A paper by Dr. William Varian, of Titusville, Pennsylvania, on the subject of

ETIOLOGY AND TREATMENT OF HOSPITAL GANGRENE DURING THE WAR,

then followed. The author enumerated the symptoms of this disease as observed by himself during the late war, and the causes which were probably concerned in its development. There may be certain atmospheric conditions, such as the prevalence of cold, wet weather, or hot moist weather, with marked electric or barometric oscillations. The influence of bad food, imperfect care, and mental depression acted, the speaker said, as predisposing cause. The probability of the presence in the atmosphere of some unknown septic poison was discussed at length. A necessary condition for the development of the disease is the existence of a solution of continuity of the cuticle or soft tissues generally; the same may be said of wounds in a state of suppuration and granulation; wounds not recent being, however, more likely to be attacked. Hospital gangrene is a local, and not a systemic, disease; it develops an auto-generative contagium, which may be spread by atmospheric diffusion, or may be conveyed from patient to patient by the surgeon's hands, instruments or dressings. That it is a local disease is attested by the fact that it may develop in only one wound upon an individual afflicted with a number of them; a few such cases were observed during the late war by others as well as by myself.

The subject of treatment was then entered upon. The futility of medicinal treatment was shown, and the complete destruction of the

tissues affected was, the author said, essential to successful treatment. These should be boldly removed by the knife, and some caustic thoroughly applied. Success is less dependent upon the nature of the latter than upon the thorough application. In his experience he had found bromine the surest, although the most disagreeable; but nitric acid and the acid nitrate of mercury had also been successfully used. The importance of a supporting treatment, of good food, stimulants, and tonics, to combat the great vital depressions which always co-exists was shown. In conclusion, the author remarked that strict asepsis should eliminate hospital gangrene from the surgery of the future.

Dr. Frederick Hyde, of Syracuse, New York, desired to know if the author had met with cases in which the disease had actually been communicated by unclean sponges and dressings; he had himself observed this in a number of instances. An affirmative answer was given.

Dr. Pickett, of Cory, Pennsylvania, related his personal experience with hospital gangrene; he had been treated by bromine and cured, but the disease had made such an impression upon him that he was still suffering.

The President, Professor Smith, asked one of the British members, Dr. Anderson, of the British army, what had been his experience with the disease. Dr. Anderson replied that he had never met with it in his hospital experience.

A paper on

THE ETIOLOGY AND TREATMENT OF CAMP DYSENTERY AND DIARRHŒA,

was read by Dr. Charles W. Buvinger, of Pittsburgh, Pennsylvania. Camp dysentery and diarrhœa are always the result of a radical change in the manner of living; by the use of bad water from stagnant pools or wells contaminated with organic matters. The use of improperly cooked food, and privations, were important factors. The speaker adverted to the influence of malarial or paludal neighborhoods and to that of scurvy in their causation.

The nature of these diseases is not well understood. They are not due to a micro-organism, bacteria, or a special bacillus, so far as known; in spite of numerous researches, we are still in the dark as regards their origin.

The history of the treatment of dysentery shows the diverse and discordant opinions entertained by authors regarding the use of ipecacuanha. No one remedy can be considered a specific for either of the diseases in question. The writer having been a great sufferer from both, briefly related his experience and experiments upon himself with various remedies.

He is convinced that fuming nitrous acid, 43%, as furnished by Powers & Weightman, of Philadelphia, is the best remedy that we have; it may be reinforced by opium, if necessary. His favorite formula is the following:

R. Acidi nitrosi, 43%..... f 3 j.
Tinct. opii..... f 3 ij.
Aque destil..... f 3 vi.
Syr. simpl..... f 3 viij.

M. Sig.—A tablespoonful in one wineglassful of water every three hours.

This remedy will afford relief in the majority of cases of dysentery and camp diarrhœa. Oil of turpentine is most valuable in the latter disease, especially in the hæmorrhagic form as well as in the chronic diarrhœa met with in private practice. The writer has for years used with success the following formula, which possesses the advantage of being pleasant to take, and is readily taken by children:

R. Acaciæ pulv..... 3 jss.
Ol. terebinth f 3 ij. 3ij.
Aque..... f 3 ij.
Syr. simpl..... ad f 3 xij.

M. Sig.—One teaspoonful every three hours to adults.

It will be noticed that this emulsion contains twenty drops to the drachm, a quantity which is less likely to cause strangury than a smaller dose. It may be reinforced by tr. opii, to prevent undue catharsis. The dose for children should, of course, be proportionate to their age. He had found this combination invaluable.

In camp diarrhœa, another efficient combination is the following, which will be found useful also in summer diarrhœa:

R. Hydrarg. chlor. mit..... gr. ij.
Pulv. ipecac..... gr. ij.
Opil gr. v.

M. et in chartulas No. X. divide.

Sig.—One every three hours.

The next paper was read by Dr. Joseph R. Smith, U. S. Army, upon

THE BEST FORM OF REPORT OF SICK AND WOUNDED OF ARMIES.

The object of such a report was described, and the form adopted by various European armies shown. Of these, that of the Prussian army is, in the opinion of the writer, the best. A model of a form suitable for all armies, designed by the author, was presented.

Five propositions were formulated for adoption by the section, the first stating the objects of report of medicine and surgery; the second the frequency and periodicity of the same; the third

recommending simplicity and uniformity; the fourth expressing preference for the Prussian system of classification; the fifth urging the adoption of the model form here presented, and directs the Secretary of the section to communicate their opinion to the medical bureau of all nations represented in the congress.

An essay by Dr. Chas. W. Brown, of Elmira, New York, upon

THE ETIOLOGY AND TREATMENT OF TETANUS was read. The author began by saying that the cause of the disease is still enshrouded in doubt, but was more probably due to ascending neuritis than to the irritation of peripheral nerves. He considers the disease a specific, contagious, and infectious one, which, according to Rosenbach, is caused by a bacillus, his experiments having shown that rabbits and mice inoculated with material from a case of tetanus died of the disease. The author adverted to some experiments made by various observers upon the horse, and proceeded to compare a true case of the disease with one of cerebro-spinal meningitis, which, he thought, had often been mistaken for idiopathic tetanus; in fact, his experience and observation had cast a doubt in his mind as to the existence of such a disease as idiopathic tetanus, which was always the result of some wound, however slight. After an interesting account of a case met with in his practice he approached the subject of treatment, which he characterized, as a rule, as very unsatisfactory. The wound should be, if necessary, freely opened and cleansed with some antiseptic fluid, and dressed in accordance with the methods of modern asepsis. Isolation and rest in a dark room, free from air-currents, were of great importance. The removal of wounded parts has not given good results in traumatic tetanus. Supporting measures are indicated in the disease, and the intelligent use of stimulants. The use of concentrated foods was not to be overlooked.

Quinine had been in some cases, apparently, used to advantage, in enormous doses, some giving as much as two hundred and sixty grains in one dose. He had himself administered it in doses of one hundred grains every hour for some time; this case recovered, and no bad results followed from the injection of such a large quantity of the drug. Fowler's solution, cannabis indica, morphia, cocaine, the bromides, had in turn been tried in vain, although the latter, particularly bromide of potassium had been strongly recommended by Dr. McCord, of Kentucky, in twenty grain doses, every hour. The use of pounded ice and the ether spray along the spine should always be resorted to.

The President, Professor Smith, announced that the paper which had been promised upon

THE MICROBIC ORIGIN OF TETANUS,

by William Browning, M.D., of Brooklyn, New York, had not been received. He then called upon Dr. J. McF. Gaston, of Atlanta, Georgia, to open the discussion upon this interesting subject.

Dr. Gaston, at the outset, regretted exceedingly that the paper just mentioned had not been presented, as he had expected from it, and as a result of the author's experiments, the presentation of new data of a definite nature upon this subject. In the absence of any such data, and relying upon his own experience with the disease, the speaker's views were not in harmony with those of Dr. Browning, concerning its bacterial origin, contagious, or infectious nature. Professor N. Senn, of Milwaukee, in a recent lecture, appeared to take for granted the bacterial origin of tetanus, the author of the paper under discussion appeared to hold the same views, but has not eliminated the doubt which may exist in regard to this etiological factor. It is begging the question to claim that tetanus is due to bacilla, because a certain bacillus of a distinctive character has been found in the course of the disease, since such an organism may be a mere accompaniment or result, and have no causative influence whatever. Regarding the claim of contagiousness or infectiousness, chiefly based upon the synchronous or subsequent appearance of the disease in man or animal in the same locality, it should be considered that there may be certain predisposing atmospheric conditions in such locality which account for the occurrence of the disease without implying its infectious or contagious nature in the ordinary acceptance of the terms.

In the speaker's experience, suppurating wounds do not often cause tetanus. The disease may be due to the development of some ptomaine, but the question of its origin is still *subjudice*.

As for the treatment, the use of chloroform, and the thorough saturation of the system with chloral and potassium bromide offer the best chance of success. The speaker had observed eighteen cases of traumatic tetanus, treated in this manner, of which ten cases had recovered.

AFTERNOON SESSION.

The first paper of the session was read by Dr. J. W. S. Gouley, of New York, N. Y., on

THE PRACTICAL CONSIDERATION OF HUMAN NOSOGRAPHY.

The author first considered the importance of a correct and thorough nomenclature of dis-

eases, and the causes that had retarded the progress of this science. To be of practical utility, nosography should be established upon a sound basis. The defects in the past and present nomenclature of diseases were chiefly enumerated, and suggestions given for their remedy. The paper concluded with the presentation of propositions looking toward an improved classification of diseases.

Dr. Simeon Tucker Clarke, of Lockport, New York, spoke of the importance of this subject, and agreed, in the main, with the views of the author.

Dr. Harrison, of Washington, D. C., Dr. Didama, and Dr. Frederick Hyde, of Syracuse, New York, discussed the subject and presented their views relative to its importance.

Dr. Hingston, of Montreal, Canada, spoke of the necessity of such a revision as that proposed, and Dr. Bontecou, of Troy, New York, referred to the simplicity of the Prussian nomenclature of diseases, as compared with ours.

Dr. Gouley concluded the discussion by suggesting that co-operative movement was needed to reach the desired end of a perfect nomenclature.

The second paper, entitled,

WHAT CLASS OF GUN-SHOT WOUNDS AND INJURIES JUSTIFY RESECTION OR EXCISION IN MODERN WARFARE?

was read by the author, Dr. Reed Brockway Bontecou, of Troy, New York.

After a clear definition of the terms, the author entered upon a consideration of the value of operations as compared with the results of expectant treatment or amputation, referred to the advantages of excisions and their reduced mortality under the antiseptic method, and gave statistics of gun-shot wounds of cranium, clavicle, scapula, and shoulder-joint. The fractures of the hip-joint were next considered. The results of resections of lower extremities were not satisfactory with regard to their future usefulness. The condition demanding excision of the shaft of femur in gun-shot fractures were chiefly enumerated. In conclusion the author adverted to the favorable statistics of antiseptic treatment without operation, and to the encouraging results of resection of the knee-joint under the same method of treatment.

Professor H. E. Goodman, of Philadelphia, after few remarks upon the paper, reported some cases of resection of the femur after the battle of Chancellorsville, attended with fatal result.

Dr. Henry Janes, of Waterbury, Vermont, read an important paper, giving the results of his experience during the late war, with

GUN-SHOT FRACTURES OF THE FEMUR.

The author's conclusions upon this interesting subject are based upon the results of no less than 427 cases occurring in his service, and treated by himself, or under his immediate observation, in two field hospitals in his charge during the years 1862 and 1863.

Of these fractures 95 were in the upper third of the bone, all of which were treated conservatively, giving a mortality of forty-six per cent. at last reports; 125 were in the middle third, 102 of these being treated conservatively, with a mortality of thirty-two per cent.; 28 were amputated, mortality forty per cent.; 207 cases were in the lower third of the bone; 67 of these, not including knee-wounds, were treated by the conservative method, with a mortality of twenty per cent.; 140 cases were amputated, resulting in one of thirty-five per cent. Besides these 427 cases, there were 84 fractures involving the knee-joint, treated conservatively, with a mortality of eighty-five per cent. The cases requiring amputation terminated earliest, but about one-eighth of them suffered from painful and tedious osteitis. Up to about forty years of age, advance in life did not seem to increase the rate of mortality. The author's conclusions are the following:

Antero-posterior wounds did no better, in my experience, than the transverse. Fractures caused by bullets moving with great velocity were fraught with more danger than those at a lower rate of speed.

Wounds occurring in prisoners did not do so well as those in their captors under the same conditions; this was probably due to the incident moral influences.

Gun-shot fractures sometimes united as readily as simple fractures.

False joint occurred but once among the two hundred and sixty-three cases treated conservatively.

Secondary hæmorrhage occurred only in nine cases, several times incident to septic poisoning.

Tetanus only occurred once.

Hospital gangrene seemed to be induced in the autumn of 1863 by bad ventilation and the occurrence of cold, damp weather.

The shortening, in the cases which completely recovered was generally of more than one inch; it was, in several instances, increased by too early use of the limb.

The formation of callus was sometimes so irregular and excessive in amount as to impede muscular action; it sometimes encroached upon an artery or nerve, and caused secondary hæmorrhage or neuralgia. In some cases the callus was absorbed in the course of septic inflammation.

Refractures, caused by falls and similar accidents, generally reunited readily when the wounds in the soft parts were healed.

The limbs often became much more useful than any artificial substitute; the author has unfortunately no statistics bearing upon this subject to offer.

Regarding the treatment of injuries of this nature, he would enjoin the surgeon *not* to saw off the ends of fractured bones, and not to use too much force in tearing off fragments of bone still attached to the periosteum. Moderate, simple extension by weights and pulleys is the best in the majority of cases; in some of the cases that did the best no extension was used. He would advise the dry dressing of wounds, with plenty of absorbents rather than with water-dressings. Strict antiseptics, according to the modern idea, is impossible in large hospitals on the battle-field.

In conclusion, the author spoke of the necessity of a liberal diet, the intelligent use of stimulants, and due regard to the sanitary precautions in the camp or hospital in which this class of injuries are treated.

Dr. Robert Reyburn, of Washington, D. C., desired to know what proportion of Dr. Janes' cases had been treated in tents and in buildings.

Dr. Janes replied that the majority of cases were treated under canvas, with free access of air; with the advent of the cold and damp weather of winter the ventilation was not so perfect, as it was difficult to impress upon the soldiers the importance of free ventilation at a time when they were suffering from the cold. It was, as previously stated, at this time that hospital gangrene set in.

Dr. Reyburn said—In my experience the kind of hospital in which the wounds under consideration are treated has much to do with the mortality; the treatment in tents I consider the best; unfortunately, most of the cases observed by him in the service could not be treated under such favorable conditions, and he had to report a mortality of about seventy-five per cent. The results achieved by Dr. Janes were most remarkable, and show what can be done by conservative surgery.

SECTION ON OBSTETRICS.

SEPTEMBER 8TH — FOURTH DAY — MORNING SESSION.

Professor Alexander R. Simpson, of Edinburgh, Scotland, occupied the chair.

Dr. Emil Poussle, of Paris, France, made a report of a case of

TYPHOID FEVER IN THE PUERPERAL WOMAN
Seven days after labor, grave symptoms of true

typhoid fever appeared; the disease running its course and the patient recovering. The report was made to call attention to the importance of distinguishing typhoid in the puerpera, from septicæmia.

Professor Alexander R. Simpson called attention to the importance of distinguishing the various forms of puerperal fevers. In Edinburgh he saw many cases of typhoid after labor; these were sometimes difficult to differentiate from ordinary sepsis, sometimes distinct and with a clear history of sewage-infection. He had seen scarlatina and measles after delivery simulating septicæmia. These diseases in the puerperal woman were apt to prove fatal before their full development.

Professor Grally Hewitt, London, England, thought that the great advance in the treatment of puerperal fever in late years consisted in means tending to prevent the introduction of septic material into the blood. Women in whom the uterus did not remain firmly contracted were the most liable to contract puerperal fever. The uterus was the seat of entrance of the poison, and in private practice the best safeguard was to keep the uterus firmly contracted. Keep the patient in as good general health as possible during the latter months of pregnancy, feed her soon after labor and keep up her strength, for where there were weakness and debility the uterine contractions were apt to be imperfect. He used antiseptic precautions and vaginal injections, with the uterine douche in appropriate cases. When the germs had once gotten into the connective tissue about the uterus, douching did no good. He insisted upon the necessity of free passage for the return flow, and advocated Budin's double-tube, which he had had made of glass, as it was then more easily examined and kept clean. In general treatment keep up the uterine contractions by various means, nourish the patient, and use stimulants *freely*.

Dr. G. W. Jones, of Danville, Illinois, had never had a case of puerperal fever in his own practice. He is always careful regarding antiseptics, employing the mercuric bichloride, or oil of turpentine, which he considered an excellent antiseptic properly used. The uterine douche is a valuable agent.

Dr. William T. Stewart, of Philadelphia, Pennsylvania, read a paper on

THE IMPORTANCE OF ACCURATE DIAGNOSIS IN PREGNANCY, WITH THE HISTORY OF A UNIQUE CASE OF RETROFLEXION OF THE GRAVID UTERUS, LABOR AT TERM.

After some remarks on the causes and necessity of the numerous cases of abdominal sur-

gery, in which he expressed a hope for some better means of prevention of female diseases, he spoke of the evil effects of the modern steel-clad corset, which injured the muscles of the back, forced down the contents of the abdomen, and impeded the venous return. He reported a case showing many blunders in the way of mistaken diagnosis.

The patient, aged twenty-nine, one year after the birth of her third and last child consulted a female doctor, who told her that a tumor was growing in the posterior vaginal cul-de-sac. She consulted several other physicians, some of them famous gynecologists, who agreed as to the nature of the "fibroid" and decided upon operation. Two days before the proposed removal of the tumor Dr. Stewart chanced to see her, and found a retroverted pregnant uterus. He advised her not to undergo the operation, and, as she was not his patient, did nothing more. At full term he was called upon to deliver her, and found the uterus still retroverted. The vertex presented above the brim, the body lying posteriorly. The os was dilated, but nearly out of reach above the pubes. An attempt at reposition, made with the patient in the knee-chest position, was successful. At the first pain after the reposition the membranes were ruptured, and at the second the child was born, living; weight, six and a half pounds.

Only two similar cases were recorded, in both of which the child was dead.

Professor Alexander R. Simpson, of Edinburgh, Scotland, thought the case interesting, as it was extremely rare for a retroversion to persist to term.

Dr. Rodney Glisan, of Portland, Oregon, related the history of a case of retroversion of the gravid uterus, reduced in the knee-chest position at the fourth month, and followed by abortion. We should always insist upon a rectification, even to the fifth month.

Dr. Williams, of Baltimore, Maryland, related a case where a retroverted gravid uterus, with bilateral laceration of the cervix to the vaginal junction, simulated cancer with fibroid.

Professor John Bartlett, of Chicago, Illinois, presented a paper entitled

A STUDY OF DEVENTER'S METHOD OF DELIVERY OF THE AFTER-COMING HEAD,

supplementing the paper with a demonstration upon the phantom.

Deventer spoke in the most confident manner of the success and safety of podalic version, and of the ease with which the head could be delivered; but did not describe his method, which, however, Dr. Bartlett had found mentioned in

Smellie's work. Deventer's method was shown to consist of a reversal of the so-called Prague method, in that the body of the child was carried far backward toward the perineum, with the view of turning the occiput out from under the pubes, the anterior surface of the neck resting on the perineum. At the beginning the occiput of the child was turned forward, so as to come under the pubes as the child was drawn down. The arms were *not* to be drawn down, but left up alongside the head, being placed so as to come anterior to either parietal base. The delivery by traction backward upon the body was to be aided by pressure made immediately above the pubes, the wedge formed by the head and arms being changed by the withdrawal of the larger transverse diameter of the head from between the arms, as descent of the head accompanied by extension occurs. The mechanism was only favorable when the occiput was anterior. Deventer never lost a child or tore a mother. The arms being left up protected the neck of the child and allowed a passage for the cord alongside of them, so that haste was not as necessary as with ordinary methods, and, occupying a broad and yielding part of the pelvis, they did not obstruct delivery. The method was a plausible one, and certainly worthy of trial in suitable cases.

Professor Simpson spoke of Deventer as one of the most reliable of obstetric writers; yet, as the method would seem to endanger the perineum, he would like to see a practical demonstration of its value.

Professor A. F. A. King, of Washington, D. C., considered Professor Bartlett's paper one of the best that had been presented to the section. In regard to the safety of the method, we must remember that the puerperal canal was elongated by the perineum, which he thought liable to be torn. However, he should describe the method in the next edition of his book.

Professor C. T. Parkes, of Chicago, Illinois, described two cases where he had had difficulty in getting down the arms, and where a decided pull backward had easily and unexpectedly delivered the head. He had not understood the matter until Professor Bartlett's paper had made it clear.

Dr. G. W. Jones, of Danville, Illinois, cited three similar cases where he had, without knowing it, used this method, with the patient on the side, the delivery being unexpectedly easy and the perineum intact in each case.

Dr. J. E. Kelly, of New York, read a paper entitled

LITHIASIS IN PREGNANCY.

Being impressed by the frequency, during gestation, of many of the arthritic, gastric, and other phenomena which ordinarily are present in lithiasis, the author reviews in detail the relations existing between the two conditions, and concludes that the association is due to the correspondence of the condition of the blood in lithiasis and pregnancy. First, considering the general pathology of lithiasis, and subsequently that of the various systems, he then investigates the phenomena of pregnancy, and indicates the influences which produce in the maternal blood a condition almost identical with that which is present in lithiasis, and draws a parallel between the diseased conditions most frequently observed in pregnancy and the symptoms of lithiasis. These investigations would suggest the careful supervision of the condition of the pregnant female, especially with regard to the digestive, circulatory and urinary symptoms, and, in suitable cases, the intelligent application of prophylaxis.

Dr. E. P. Christian, of Wyandotte, Michigan, read a statistical paper on

THE PROPORTION AND CAUSES OF STILL-BIRTHS.

The average for states and counties was about four per centum; for large cities, seven per centum. His personal statistics, in a small manufacturing town, were a little less than four and a half per centum in 1,675 labors, including 17 cases of twins.

Prominent among the causes of mortality were syphilis, intemperance and ergot.

Professor Alexander R. Simpson spoke of the value of such statistical researches, and of the labor they required. He strongly condemned ergot, given before the birth of the child, as being a most fruitful cause of still-births.

Drs. Dunmire, of Philadelphia, Pennsylvania; Pierce, of Ohio; Lester, of New York, N. Y.; Stewart, of Philadelphia, Pennsylvania; Robinson, of Danville, Virginia; and Sale, of Mississippi, united in condemning the use of ergot.

SECTION ON GYNÆCOLOGY.

SEPTEMBER 9TH — FOURTH DAY — MORNING SESSION.

Dr. Ephraim Cutter, of New York, N. Y., read a paper on

GALVINISM OF UTERINE FIBROIDS.

The paper was divided into Expectations, Realizations, Answers to Critics, Conclusions.

EXPECTATIONS.

August 21, 1886, the first American operation was performed, simply to arrest development of the fibroid. It was participated in by Dr. W. S. Stoveham, of Massachusetts (*American Jour-*

nal of Obstetrics, New York, February, 1887, 120).

Dr. Gilman Kimball was present, August 29, 1887, and operated the second time. "So far as the priority is concerned, I am willing to give it to him, for I will have no question of honor between him and me."

The idea of using common needles was scouted at once by their unsatisfactory performance. Dr. Kimball said he would have nothing to do with the operation unless better needles were provided. I invented one plated with gold and shaped like a corkscrew, which proved a useless device. The so-called Cutter needles were then produced. Whatever has been or may be said of them, they were satisfactory.

REALIZATIONS.

After sixteen years, besides the expected arrested development in a large majority of the cases, there have been: 1, entire cures; 2, great diminution of the growths; 3, relief from pain and hæmorrhages; 4, attention to the operation by the profession; 5, about four hundred cases of operation reported, besides many scores not reported; 6, the variation from galvanism to faradism, in the mode of application, in the batteries, in the duration of the application, in the kinds of electrodes, in the discovery of instruments for mensuration; 7, the operation has been widely published and has become pretty well known; 8, uterine fibroids are no longer opprobria medicina.

When the first operation was done there were no amperemeters; only voltmeters, which are measures of electro-motive force. It is not claimed that the milliamperemeter cures; it only measures. I only object to the doctrine that no operation can be done without measurement, not to measurement itself.

APOSTOLI'S CRITICISMS.

I distinguish between him and his sayings; I know him for the work he has done, and reply to him in no spirit of malice.

CONCLUSIONS.

1. When an untried operation is purposed, it is not wise for those whose opinion is asked as experts to say it cannot be done.

2. Best to give all due credit for what they do.

3. In performing this operation use common sense, and not blindly follow any one's method unless indicated by the strongest signs.

4. Hereafter any physician who says uterine fibroids are hopelessly incurable is not sustained by the facts and evidence.

Dr. A. Lapthorn Smith, of Montreal, Canada, was sorry that Dr. Apostoli could not defend himself against the criticisms in the paper

of Dr. Cutter in the English language. Most uterine fibroids are situated posteriorly, and hence are easily reached and treated by negative galvano-puncture. I have been deluged with questions about this treatment since the reading of Dr. Apostoli's paper and my own. As to the question, Can fibroids be treated without puncture? I would refer you to Dr. Martin's paper, which was on this subject. Apostoli never dares to make an examination without first washing out the vagina with a bichloride solution (1 in 1,000, 2,000, or 3,000). He cures subinvolution, and with the positive galvano-cautery does away with dilatation in very many cases of dysmenorrhoea. Gentlemen who make their living by the removal of the ovaries will lose their occupations when electricity is more in vogue.

Dr. F. H. Martin, of Chicago Illinois, said he knew it to be impossible for Dr. Cutter to get any current at all through the battery described by him.

Dr. Kimball, of Lowell, Massachusetts, who was introduced by the president as a pioneer in the treatment of fibroid tumors by electricity, gave his experience.

Dr. Garrett, of Boston, Massachusetts, who was also introduced as a pioneer, gave his testimony regarding this treatment.

Dr. Apostoli, of Paris France, spoke in defense of his system. He wished to give Dr. Cutter all credit for his investigations; but now that we have the means of measuring electricity, a measurement made definite by the electrical congress of Paris, there is no excuse for using it hap-hazard and everyone should use it rationally.

Dr. Smith, of Montreal, Canada, then said there were a hundred little details, which it is impossible to explain in the short time allowed.

Dr. Cutter asked Apostoli if he had cured any case so that the tumor had entirely disappeared.

Dr. Apostoli replied that he cures the cases symptomatically, the patient does not know any more that she has a tumor.

AFTERNOON SESSION.

Dr. August Martin, of Berlin, Germany, read a paper on

THE VAGINAL TOTAL EXTIRPATION OF THE UTERUS FOR CANCER.

Freund inaugurated the extirpation of the cancerous uterus ten years ago. Sufficient material is now at hand to decide the two following questions, which may legitimately be asked concerning every new method of surgical treatment:

1. Is this operation practicable with such im-

mediate success that it promises good results in the hands of others than a few specially successful operators?

2. Does the extirpation of the cancerous uterus give permanent results which force us to recognize that this method is superior to any other treatment of cancer employed up to the present time?

In seeking an answer to the first, if we examine the literature, we are struck with the fact that only meagre and isolated reports about this operation can be found in English and German medical journals. Vaginal extirpation has obtained decided recognition in Germany. In this country the purely vaginal operation of Czerny and Billroth and Schroeder has been adopted instead of the procedure of Freund, which was a combination of abdominal and vaginal operations. The results of the same have improved noticeably with increasing exercise and experience.

In 1881 Olshausen collected 41 cases with twenty-nine per cent. mortality. In 1888 Sanger, 138 cases, twenty-eight per cent. mortality. In 1884 Engstrom, 157 cases, twenty-nine per cent. mortality. In 1886 Hegar, 257 cases, twenty-eight per cent. mortality.

Through the courtesy of these operators, who to my knowledge commanded the greatest amount of material, and, at my request, placed at my disposal the results up to the end of the year 1886, I am able to present the following:

Up to the end of 1886 these total extirpations have been performed on account of carcinoma uteri: Fritsch, 60 times with 7 deaths; Leopold, 42 times, 4 deaths; Olshausen, 47 times, 12 deaths; Schroeder (Hofmeir), 74 times, 12 deaths; Staude, 22 times, 1 death; A. Martin, 66 times, 11 deaths. Total, 311 cases with 47 deaths, or 15.1 per cent.

Are we not justified in assuming that this

RATE OF MORTALITY WILL DECREASE,

with more experience, as shown by the published tabular results of each of these operators? Already the total extirpation of the uterus for cancer shows better results, so far as immediate mortality is concerned, than removal of the breast for cancer.

For the latter, Kuster, at the twelfth meeting of the German Surgical Society, in 1883, published 778 cases with a mortality of 15.6 per cent. Who would hesitate to propose to perform the amputation of the cancerous breast so soon as the diagnosis is established?

I do not hesitate to answer my first question in the affirmative, and to claim for this operation of the vaginal total extirpation of the uterus a full

and equal rank among all methods for the treatment of cancer of this organ.

For an answer to the second we will make use of the relatively small, but very accurately reported cases of Schroeder, collected by Hofmeir, and those of Fritsch, Leopold and myself.

Table II. shows that the permanent results of vaginal total extirpation in this relatively short period of observation are no doubt equal to the best results of carcinoma operations of other organs.

The author up to the end of 1885 operated on 44 cases. Of these relapsed 18, or 29.7 per cent.; recovered, 31, or 70.3 per cent.

Is there any other method of treating cancer which with so small mortality can show equally good results? There is no other mode of treating cancer of the fundus and those forms of diseases of the cervix in which the mucous lining of the cervical canal is the point of origin, or in which there are carcinomatous nodules in the tissues of the neck. There is no room for discussion except in epithelioma of the portio vaginalis arising from the surface of the cervix, that is, from a surface covered with flat epithelium and containing very few glands.

I agree with Fritsch that the observation of cases of progress of the disease in isolated nodules in the mucous membrane up to the fundus, in cases of carcinoma colli, is sufficient in itself to show it is erroneous to claim that in carcinoma of the cervix we should try to save the body of the uterus. Binswanger and P. Ruge have described such well-marked cases.

The possibility of a subsequent pregnancy is not excluded in cases of high excision; but Hofmeir himself declares that pregnancy is a very serious danger in carcinoma. Therefore, I am convinced that it is much better to immediately perform vaginal total extirpation in these forms of epithelioma of the cervix. The sooner we operate the more surely we may hope to save our patients from the sad fate of death by cancer. The greater the experience with vaginal total extirpations the more has the rule been proved that we shall perform the operation only when the vicinity of the uterus is entirely free from carcinomatous infiltration. All attempts to enlarge the boundaries of the operation in this direction have failed.

The technique of the operation has undergone only immaterial changes, as is shown by the results of operators using different methods. It is irrelevant whether the uterus be removed by an incision made in front of, or at the side of the neck, or behind it. It is of little importance whether hæmorrhages be prevented by stitches

introduced before the incision, or whether each separate vessel be seized and tied as it bleeds. It is immaterial whether the uterus be turned over or removed by drawing it down and freeing it, whether the opening in the floor of the pelvis remain open or be closed, or be drained either with the iodoform gauze or with a tube.

If it be easily practicable I advise that the ovaries and tubes be also removed. It is immaterial whether the wound be sutured or not. It is wonderful what little impression the operation makes on the patient. One can liken her very much to a puerperal woman.

Bleeding must be stopped, at all events during convalescence; the parts as much as possible kept at rest. Washing out the peritoneal cavity does not work favorably.

The papers of Drs. Martin and Jackson on "Hysterectomy for Uterine Cancer," were discussed.

Dr. Martin, of Berlin, Prussia, said: I am accustomed to prepare my patients for operation with the most thorough antiseptic vaginal injection. He then described most minutely his method of operating. He very frequently opens the Douglas pouch at one stroke of the knife. You then see the posterior fornix and cut carefully, paring with the finger-nail. When the peritoneum is opened I introduce one finger into the peritoneum and, having warm water running over the surface, do not use sponges. I suture the vagina to the peritoneum. When I have freed the broad ligament I cut it from the uterus and generally have no hæmorrhage. I then proceed in like manner on the other side, till I have the broad ligament severed there also. Up to this stage there is very immaterial hæmorrhage. I then commence on the bladder—freeing it with the forceps or the knife. After it is freed I unite the cut border of the vagina with the peritoneum, just as I did before. I am accustomed to put a drainage-tube into the peritoneum, consisting of india-rubber. I think it does good, although I must confess that I believe that a case which is not infected, should be closed up. Yet I have had such good results from this that I still use it. There are various gentlemen present who have seen me operate, and who can testify that I lose a very small amount of blood. Of course there are cases where a loss of blood is necessary from the existing conditions. The operation is yet new, it has only been done for six years, and I think we will improve on it very much.

Dr. D'Arny, of Hungary, gave a history of his experience with twelve cases. Out of these twelve cases only two are now living, after a period of three or four years. As to the operation

he thought that the best we could do was to close the opening into the pelvis, and fill the vagina with iodoform gauze, and let the patient alone. As to Dr. Jackson, he thought he was on the wrong road with his statistics. Statistics deal only with quantity, not with quality. If there are one hundred persons on a ship, possibly I can save only one of them. Should I not save this one? Certainly. Patients suffering with cancer of the uterus are shipwrecked persons, and sure to die a most painful death. We can save a number of our patients, and those who die usually die in a short time, and comparatively comfortable deaths. Humanity demands of us that we do the operation of vaginal hysterectomy in all cases in which we can remove all of the diseased tissue.

Dr. A. P. Dudley, of New York, N. Y., wished to enter a plea for vaginal hysterectomy for uterine cancer in America, and point out why the operation had been less successful here than in Germany. Martin had sixty-six cases, with eleven deaths. In a paper read by me, some time since, I reported sixty-six cases with thirty-four deaths. These sixty-six cases, however, were divided between thirty-four operators, and here lies the difficulty. Experience is a good teacher, and practice makes perfect. The child must creep before it can walk, and the surgeon must have a fair trial, especially in America. As in the case of ovariectomy, which originated in America, our surgeons are almost flocking to Europe to learn how it is done. The amount of pain and suffering in the death of the patient is one of the points which should induce us to try this operation.

Dr. Nunn, of Savannah, Georgia, said that there was always a starting point to cancer. It is generally due to neglect of fissures or some other irritant, arising consequent to parturition. In my own practice I have my patients report to me occasionally after delivery, and see that they take care of themselves properly, and I have not had a case of cancer in my own patients.

Professor Grally Hewitt, of London, England, said that the whole civilized world, and the uncivilized too, are under obligations to Dr. Martin and his colleagues for their work in this line, having advanced the operation to its present state. In a discussion in the London Obstetrical Society, a few years ago, I was the only one who refrained from condemning the operation. I think it should be done in properly selected cases, by gentlemen of experience.

Professor A. Reeves Jackson, of Chicago, Illinois, thought it wrong to attempt to reason

against facts, as well as difficult. His paper was based on facts founded on the results of Gussarow, Paget and such men. These gentlemen had estimated the duration of life, in those women suffering from uterine cancer, to be twenty-one months as an average. If this be true, then my calculation as to the duration of life will not be denied. The average duration of life of women operated upon is fourteen months; this difference in the aggregate amounts to nearly three hundred years of grand total loss of life. Does anybody allege that it has saved life? Dr. Martin claims that the operation should be done only when the disease is limited to the uterus. How does he know the case was limited to the uterus? Because it did not return? Baker, of this country, by his high operation, has sixty per centum of recoveries, which is far better than Martin's.

Dr. Martin replied that he knew that a cancer was limited to an organ by its having a layer of entirely healthy tissue around it.

SECTION ON THERAPEUTICS AND MATERIA MEDICA.

FOURTH DAY.

A paper on

THE CHEMISTRY AND PHARMACOLOGY OF THE NITRITES AND OF NITRO-GLYCERINE,

by George Armstrong Atkinson, M. B. C. M.' was presented, and in the absence of the author, was read by Dr. Ralph Stockman, of Edinburg, Scotland.

The action of the salts of nitrous acid resembles closely those of the acid which is the essential basis of this group of medicinal agents. Nitrous acid is remarkably unstable; in watery solution of $\frac{1}{10}$ it may be used for a day or two for experimentation, but it has no advantage over a solution of nitrite of sodium, which possesses identical effects in so far as an acid can be considered identical with one of its salts. Our knowledge of the action of the nitrite group has been chiefly derived from a study of the effects produced by nitrite of amyl. Since here the base (amyl) has a decided action of its own, it is necessary to select a salt in which the base in its combination possesses no well-marked physiological activity. The resemblance between the action of sodium nitrite and amyl nitrite has been pointed out by Gamgee, Lauder-Brunton, Hay, Leech, and others. Barth described its highly poisonous qualities. Binz showed that it caused death from general paralysis, especially of the muscular system, no convulsions preceeding the fatal issue. Reichert considered it iden-

tical in its toxic effects with potassium nitrite. Its effects may be summed up as a paralyzer of muscular tissue, non-striated muscle being affected less quickly than striated. The brain centers are also affected. The blood becomes of a chocolate color in mammals (methæmoglobin), respirations are slowed, temperature slightly lowered. Death occurs in frogs from cessation of respiration; after the heart has stopped its movements, it is found in full diastole and quite inexcitable.

Post-mortem rigidity comes on early. In rabbits, three grains were a fatal dose in one three pounds in weight. The same appearances were found post-mortem. In man, small doses (eight grains) produced great tendency to faintness and considerable acceleration of pulse, and decided lowering of arterial tension. Paralysis of respiration is due to the effect of the nitrite on the muscular system chiefly, but also in part to the effect on the medullary centre. Small doses slightly increase the flow of urine; large always diminish it. Urea and uric acid are almost unaffected. Sugar appears in the urine of rabbits after some hours, if the animal be kept very decidedly under the influence of the drug; but rapidly disappears if the administration of the drug be stopped. The nitrite is largely destroyed in the system, being partly, however, excreted as nitrate, partly, probably, as urea; a portion of it is excreted as nitrite.

The pharmacology of the other nitrite is briefly dismissed. Nitrite of potassium, nitrite of ethyl, nitrite of amyl act in very similar manner to the sodium salt. Nitro-glycerine acts partly as a nitrite, and partly *per se*. In small doses it exerts the nitrite effect as a paralyzer: in large doses it produces convulsions.

Dr. Murrell, of London, England, referred to his discovery of the usefulness of nitrite of amyl in the condition of angina pectoris, and he always advised patients to carry the medicine in a small bottle. The pearls he considered too expensive for use. The tabellæ (Ch. B.) of nitro-glycerine, made with chocolate, he considered dangerous from their resemblance to confections. He had used nitro-glycerine in one per cent. solution (dose m. v-xv) in cases of neuralgia of the fifth nerve, surgical shock, asthma (spasmodic and cardiac), and reflex neuroses. He preferred this in epilepsy to the nitrite of sodium, which had been recommended by Dr. Law. In angina, patients can take fifteen minims when they feel the attack coming on; such patients should carry a small bottle with them for immediate use when they feel the attack coming on, otherwise they might perish before the agent could

be obtained. He gave an amusing instance of the difficulty of obtaining nitro-glycerine in England at present.

Dr. Upshur, of Richmond, Virginia, reported a case in which the inhalation of nitrite of amyl, in a patient suffering with heart failure and puerperal septicæmia, undoubtedly saved life by cautiously continuing the remedy, whenever there was a failure of the pulse, for about forty-eight hours, when it was withdrawn and diffusible stimulants substituted.

Dr. Wade, of Holly, Michigan, prefers a ten per centum alcoholic solution of the amyl nitrite, which he uses by inhalation. He regards it as the best form of cardiac stimulant in sudden emergencies.

Dr. Phillips, of London, England, had experienced headache, dizziness, and faintness after taking five minims of a one per centum solution of nitro-glycerine hypodermically. He had found the tabellæ (each m. j. of a one per centum solution) useful in angina pectoris. Patients usually will not tolerate more than three or four of these, but some will require twenty-five or thirty. The effect of sodium nitrite is more prolonged than for the ethereal nitrites, and for this reason he prefers to give it in dyspnœa attending bronchitis.

Dr. Brackett, of Washington, D. C., reported a case of successful treatment of an epileptic by the use of amyl nitrite by inhalation.

Dr. Wade, of Holly, Michigan, recommended nitro-glycerine in cases of threatened local asphyxia of brain from embolism or thrombosis; he had had good results.

Dr. Phillips, in answer to a question, said that he would regard fifteen minims of solution of nitro-glycerine, hypodermically given, as a dangerous dose.

Dr. Murrell thought that there was no advantage to be derived from its hypodermic use, since it acts so quickly when swallowed.

The next paper was

ON THE POISON OF THE COBRA,
by Dr. Julius Gnezda, of Berlin. The substance upon which the experiments were made was brought from India by Dr. Robert Koch. It was obtained by making the cobras strike some shells covered by sheepskin. The poison was afterward dried. It is soluble in water, but not in alcohol or ether; its activity is lost by boiling. It is uniformly poisonous to higher animals. The European hedgehog and the ordinary swine of this country are popularly believed to enjoy an immunity, but this is explained by mechanical obstacles to absorption in these cases. The poison is contained in an albuminous fluid, but

its chemical construction is not as yet settled. It is poisonous when applied to mucous surfaces, without causing blisters.

The effect is very marked when the poison is injected into the circulation. The blood-pressure is at first increased, the blood-corpuscles are changed in their shape, and the spectrum of the blood is characteristic. It was found that death did not occur at once, but after about half an hour and as the result of failure of respiration, so that the Indian Government was induced to recommend artificial respiration in such cases. At present, no antidote is generally accepted. Since it is not known whether the poison is an alkaloid, a ptomaine, or other body, such a question is at present only a speculation. As it is secreted by salivary glands, it is probably an albuminous body. Permanganate of potash has not been found an efficient antidote.

Dr. Phillips, of London, England, regarded the paper as an interesting contribution to our knowledge of the characteristics of snake-poison.

Dr. Lewin, of Berlin, Prussia, could not harmonize the report made of the spectroscopic appearance with the usual characters of the blood-spectrum. The appearance was peculiar, and needed further investigation. With regard to the antidote, it may be acknowledged that there can be no general antidote to counteract the poison after it gets into the system; but if the remedy can be injected *locally* into the wounds, then potassium permanganate and a number of agents having a caustic effect may neutralize or destroy it.

Professor F. Woodbury, of Philadelphia, Pennsylvania, said that in regard to the nature of the poison, Drs. Mitchell and Reichart, of Philadelphia, had conducted a series of experiments which seemed to establish the fact that the snake-poison is not a single substance, but is probably composed of two, one of which is of the nature of a peptone. In the "Life of Francis Buckland," the English naturalist, the incident is given of Mr. Buckland having been inoculated with a very minute portion of the virus, accidentally, under his finger nail. He shortly afterward suffered with intense pain at the back of his head, faintness, and collapse, from which he recovered with difficulty after taking large doses of ammonia and brandy. He attributed his recovery to the antidotal effects of these agents. We may conclude that when a minute amount has been absorbed, ammonia and alcohol are antidotal, but where any considerable amount is received into the circulation the case is hopeless.

Professor Trail Green said that he had made some experiments with snake poison, and had

been surprised by the quickness of the effects on a rat which had been bitten over the jugular vein. Death was instantaneous where the poison entered the blood directly.

Dr. L. Lewin, of Berlin, Prussia, read a paper
ON THE MAXIMAL DOSES OF DRUGS.

Of the many difficulties against which pharmacotherapy has to strive, the dosage of medicine is by no means the least. Variation in dose arises

(1) From the differences (a) between one person and another; (b) between single individuals at different times; (c) between the intensity of the disease in men suffering with the same affection; (d) between diseases in which the same drug is used.

(2) From the variability in the activity of the greater part of our remedies.

At the same time it is possible and desirable to establish the usual dose of agents which are active in relatively small quantity, and which readily produce toxic effects when the dose is increased. Two groups of preparations fall under this head: (1) Plants (crude) and plant-products, and their pharmaceutical representatives; and (2) chemical substances such as metalloids, metallic salts, and carbon-compounds.

The first group is almost universally inconstant in its effects, and thus far an international agreement as to their maximal doses has not been possible. The remedies of the second group, on the contrary, are nearly uniform, and the doses beyond which they cannot be given without danger can be determined by physiological experiment; but although the basis for such agreement is tolerably broad, yet the statements given in different pharmacopœias in many cases vary greatly. Such variations can be easily explained in the case of the first group, but becomes incomprehensible in the second.

From the results of his own observation and a comparison of the most of the pharmacopœias which give maximal doses, the author had constructed a table of the ordinary maximal doses of many of the drugs belonging to the second group, which he appended to this communication. Such a list should be added to the pharmacopœias of such countries as have no maximal dosage, for the convenience of the practitioner, who thus would be enabled to prescribe such drugs with confidence even if they should not be generally used in his own country. From this Congress he hoped the influence would go out which would make such an international agreement possible.

Professor F. Woodbury, Philadelphia, Penn-

sylvania, instanced the varying effect from chloral hydrate, which is sometimes taken safely in large doses, and at other times it proves rapidly fatal, even in doses of ten grains. He inquired if this effect could be due to the coincidence of digestion and the change of chloral into chloroform by the alkaline bile, as Liebig believed.

Dr. Stockman, Edinburgh, Scotland, said that the amount of chloroform liberated from ten or fifteen grains of chloral hydrate would be so small as to be trifling. He thought that it was not decomposed, but that it acted as chloral hydrate. A good deal of dissatisfaction has been felt with chloral on account of its depressing action, and other agents such as hypnone and urethan, have lately been introduced to take its place.

Dr. H. G. Beyer, U. S. Navy, said that Mayer had explained the action of chloral hydrate as that of trichloroacetic acid; and, in fact, all other halogen derivatives of organic compounds produce their effects by the chlorine which they contain, which is said to be set free whenever these compounds are brought into an acid medium. For instance, the cells of the cerebrum are supposed to react slightly acid during intellectual activity, but when trichloroacetate of sodium is injected into the blood, the chemical compound is decomposed, chlorine is set free, and sleep produced, or intellectual torpor, in the same manner as this is done by chloral hydrate.

Dr. John N. Upen, of Richmond, Virginia, read a paper entitled

THE EMMENAGOGUE ACTION OF THE MANGANESE PREPARATIONS.

The usefulness of potassium permanganate when used as a deodorizer and disinfectant is based upon its readiness to part with its oxygen. Its mode of action is not clear, but in small doses internally it acts like iron, improves the general nutrition, and causes an increased and easier flow of blood at the menstrual period. The permanganate of potassium and the oxide of manganese are both used, the latter being more acceptable to the stomach than the former. It is given in gelatine-coated pills (gr. j. to ij. after meals), and to get its full effect it must be given before three successive periods. In amenorrhœa due to an impoverished and cachectic condition of the blood, oxide of manganese, given in combination with some form of iron, will undoubtedly prove of benefit. It is also useful where the condition is due to defective nervous or vascular supply when pain is present, due to functional disorder; also when no obstruction exists, but the endometrium is in a

state of chronic congestion, or affected by inflammation due to obstruction which has been removed; in all cases of vicarious menstruation; in amenorrhœa of plethora and obesity; *in fine, when the menstrual derangement is due to functional and not mechanical or obstructive cause.* Especially had he found it advantageous in membranous dysmenorrhœa. An interesting case was reported in illustration of the latter class.

Dr. DeWitt Clinton Wade, of Holly, Michigan, read a brief communication on a

FORMULA FOR OFFICIAL DILUTE HYDROBROMIC ACID (U. S. P.).

In 1874 he had first made the acid by the reaction of tartaric acid upon potassium bromide; and in 1875 had published a paper recommending its use in therapeutics. It was made official in the last revision of the United States Pharmacopœia, but the product is very variable by the official process. He recommends the following for making a standard ten per centum.

SOLUTION OF HYDROBROMIC ACID.

Bromide of potassium, four (*Avoir*) ounces; tartaric acid, five (*Avoir*) ounces; water, seven (fluid) ounces. Dissolve the salt in the water and add the acid. When thoroughly mixed set aside in the cold for the precipitation of the acid tartrate of potassium. Decant the supernatant fluid and dilute with sixteen fluid ounces of water. The result is a ten per centum solution, by weight, of hydrobromic acid.

SECTION ON ANATOMY.

FOURTH DAY—MORNING SESSION.

The first paper presented was entitled THE FUNDAMENTAL ANATOMICO-MECHANICAL CONSIDERATIONS UNDERLYING THE SUCCESSFUL TREATMENT OF DEFORMITIES, DISEASE AND WEAKNESS OF THE SPINE, by Milton Josiah Roberts, M. D., etc., of New York, N. Y. He had begun by saying that he had spared no time, labor, nor expense in studying this subject thoroughly, by testing all known methods, and felt that he could offer his results with some satisfaction to the Section. The corsets for the arrest of Pott's disease and other spinal troubles were made of a fine wire thread which was carefully woven over a plaster cast of the patient's body, so as to secure an exact adaptation. The great problems to be solved were—how and where to get hold of the body to support it without irritation, and how best to apply any remedies necessary. These problems, he thought, were simply mechanical. Bone should be the supporting point. He spoke of the great

advantage of these wire corsets over the heavy and clumsy Plaster-of Paris jackets. He thought there was a great want of proper description of how to apply these apparatuses on the part of writers and lecturers. He mentioned, also, the ease with which these wire jackets followed the chest-walls during respiration. He had found no brace so good for the support of the head as the one that went over the head. He showed several specimens of Pott's disease and other spinal deformities, and also photographs, drawings and models.

Dr. William J. Herdmann, of Ann Arbor, Michigan, spoke of the great advantage of Dr. Roberts' wire jackets over the old plaster jackets, and insisted that such apparatus could only be applied by one thoroughly interested in the subject and ingenious and skillful.

Dr. Max J. Stern, of Philadelphia, Pennsylvania, then presented a specimen of

AN ANOMALOUS MIDDLE THYROID ARTERY,

the knowledge of which was of surgical importance in tracheotomy. He thought it was the first of its kind made public.

Dr. Herdmann had seen several such anomalies, and thought it not uncommon; but had never published his cases.

AFTERNOON SESSION.

Dr. W. X. Sudduth, of Philadelphia, Pennsylvania, then read a paper on

DEVELOPMENT OF BONE,

in which, after defining the terms ossification-bone and osteoblast, he laid down as the result of his study of developing bone that the white blood-corpuscles were the basis of all the connective-tissue group. He emphasized the point that the osteoblast did not become calcified. In the process of calcification the secretion took place around and not in the cell, the calco-spherules joined, and solid bone was formed. This deposit of bone-salts took place in the interstitial protoplasm. As the ossification began, the first deposit of bone was at the periphery of the system, and as it approached the centre it was self-limiting. As calcification progressed the osteoblast decreased in size and its envelope grew thicker. He quoted several authorities and their definition of the different kinds of bone according to their development. His own definition of bone was that it was an aggregation or conglomeration of calco-spherules. His own division of bone according to its development was:

(1) Interstitial; (2) intermembraneous; (3) subperiosteal; (4) intercartilaginous.

By interstitial bone he meant those bones which were not formed in cartilage and in which ossification took place prior to birth. The paper was illustrated by many microscopical specimens of developing bone, which were beautifully stained and mounted.

Dr. N. Stamm, of Fremont, Ohio, then read a paper entitled

ANATOMICAL POINTS OF VALUE IN THE DIAGNOSIS AND TREATMENT OF SOME OF THE JOINT AFFECTIONS.

He first described the anatomy of the synovial sac and proceeded to speak of some of the inflammatory and tubercular affections of the joints, confining his remarks to the knee and ankle-joints. He reviewed the etiology, pathology, and bibliography of the subject and then laid down the rules of treatment, the basis of which was rest and fixation.

Dr. Benjamin Lee, of Philadelphia, Pennsylvania, then read a paper entitled

CASE OF DEFORMITY OF THE SPINAL COLUMN PRODUCED BY MATERNAL IMPRESSION ON THE FETUS,

in which he related a case of cyphosis supposed to have been caused by maternal impression.

In the discussion which followed, Dr. Joseph N. Dickson, of Pittsburg, Pennsylvania, and several others were of the opinion that many cases occurred in which the maternal impression had no visible effect upon the fetus, and thought that if statistics of all such cases could be collected a small proportion would be found to be so affected.

SECTION ON PATHOLOGY.

FOURTH DAY.

Dr. Leopold Servais, of Antwerp, Belgium, reported two successful cases of

REMOVAL OF THE SUPERIOR MAXILLA

for cancerous tumors.

Dr. Jackson, of Norfolk, Virginia, read a paper on

THE NATURAL AGENCIES EXHIBITING THE LIFE-PROCESSES OF PATHOLOGICAL ORGANISMS.

Professor N. S. Davis, Jr., of Chicago, read a paper on

CELLULAR PATHOLOGY—ITS UTILITY IN PATHOLOGICAL PROCESSES.

The author briefly referred to the views of Metchnikoff on intra-cellular digestion, and the illustrations of this process given by him and J. Bland Sutton.

He called attention to the fact that there is probably a cellular digestion in addition to the

intra-cellular. By the former term he described the process which takes place when dead bone is removed or eroded by leucocytes, granulation-cells, etc. Under such circumstances, undoubtedly the living cells are the active factors in removing the bone, and there is no evidence of the occurrence of intra-cellular digestion. The removal is accomplished by a similar digestive process, but the cell acts by contact with the digestible body, not by first swallowing it. Digestion by cells in pathological processes was illustrated by the so-called absorption of extravasated blood, of fibrin in thrombi and in deposits, in croupous pneumonia, of cells killed by the exciters of inflammation of various kinds, of bone and various foreign bodies that are soluble in the living tissues but not in the liquids of the body.

Such powers of digestion were ascribed to the leucocytes and connective tissue cells and granulation cells, and probably to some tumor cells.

Metchnikoff's view, that leucocytes are the natural adversaries of micro-organisms, was referred to, but the assertion made that only in certain cases was it shown that leucocytes were inimical to bacteria. They are, however, the undoubted removers of dead micro-organisms, and probably by processes of intra-cellular digestion.

We possess no knowledge of the exact chemical changes that take place in these processes. Some facts are pointed to that show the predilection of leucocytes for peptone. The suggestion was made that possibly this was the form in which they required their nourishment.

SECTION ON DISEASES OF CHILDREN.

FOURTH DAY—AFTERNOON SESSION.

Professor Albert R. Leeds, of Hoboken, New Jersey, read a paper on

THE NUTRITION OF INFANTS.

He had undertaken to find a true basis for the preparation of artificial food by analyzing eighty samples of human milk. He found that human milk differs from cow's milk chiefly in the proportion and digestibility of the caseine, which is smaller in quantity and more easily digestible in human than in cow's milk. He believed that he had solved the problem by digesting the caseine by a peptogenic powder, easily obtainable and of constant strength, which, with the aid of heat, reduced the caseine in five minutes. Before this cooking, the milk had been first diluted with water in order to lessen the proportion of caseine, and then had been enriched by the addition of cream to restore the normal proportion of fat. The results of a very large number of trials, fol-

lowed by careful observation, encouraged the belief that by this process the artificial feeding of infants had nearly reached perfection.

A paper by Professor D'Espine, of Geneva, Switzerland, entitled

OBSERVATIONS ON TRUE OR LOBAR PNEUMONIA IN CHILDREN,

was then read by Dr. Cordes, of Geneva. The object of the paper was to maintain that there exists in children a special form of true pneumonia, which may be called central, from its location; congestive, from the violence of the inflammatory symptoms; and abortive, when its duration does not exceed two or three days. It is found in the interior of the upper lobe, and in its upper part. As the physical signs are detected with difficulty it may easily be mistaken for some disease which has the same train of general symptoms. The microscopic examination of the sputa reveals the presence of the micro-organisms commonly found associated with pneumonia.

A fatal termination is the exception, and when it occurs is generally the result of complications. The writer detailed cases in which death had been preceded in some cases by gangrene, and in others by gray hepatization. The best form of treatment is that which has for its object the reduction of the inflammation. Tepid baths, the compresses of Priesnitz, and similar methods of combating general and local heat are to be used. This treatment is alone reliable when there is high fever with cerebral symptoms.

Dr. Henry Ashby, of Manchester, England, then read a paper entitled

SCARLATINAL NEPHRITIS FROM A CLINICAL AND PATHOLOGICAL STANDPOINT.

The paper presented the results of his own observations in the wards and dead-house of Pendlebury Hospital for Sick Children, where fifteen hundred cases of the disease had been received in the past eight years. The disease has been observed in three forms: (1) An early or initial form, not especially important when compared with the others, and (2) a variety dependent on septic changes which leaves traces in the kidneys discoverable by the microscope. It occurs in the second and third weeks. In most cases this septic inflammation of the kidneys gives no symptoms distinguishable from those of general septicæmia. It does not extend so widely in the tissues of the kidneys as to impair their functions seriously. The urine is not diminished, and general cedema and uræmic symptoms are absent. (3) Post scarlatinal nephritis, or the nephritis of convalescence, far surpasses the

other forms in interest and importance. It occurs in an apparently well or rapidly convalescing child, and is the last and often fatal assault of a disease which has been almost subdued. It occurs from the sixteenth to the twenty-fourth day. The kidneys, after this form of scarlatina, like the lungs in measles, are weakened by their efforts to eliminate poison, and are more readily affected by fibrinous or croupous inflammation. In hospital practice, at least, cases of mild scarlatina are less liable than severe cases to be followed by nephritis, which ranges in severity from cases which might easily be overlooked to those in which the uræmic symptoms are sudden and alarming. The earliest and most characteristic signs are diminished urine and puffiness of the face, which may appear several days before albumen is detected. The amount of albumen and its specific gravity vary greatly in different cases. The urine continues to diminish in quantity, and œdema of the face sets in, with vomiting and other uræmic symptoms, when suddenly a crisis like that of pneumonia takes place, large quantities of smoky urine of low specific gravity pass, and the patient is convalescing again.

A paper on the

ANATOMICAL CHARACTERS OF SCARLATINAL NEPHRITIS,

was then read by Dr. Frank Grauer of New York, N. Y.

The writer reviewed the post-mortem renal conditions in the initial catarrhal nephritis of scarlatina, and those which are found in the large flabby hæmorrhagic kidney, which belongs to septic inflammation. But he had more particularly studied post-scarlatinal or Klebs' acute glomerulo-nephritis, his observations being based on nine cases of this affection. The gross and microscopical appearances were described in detail. The kidneys were enlarged and hyperæmic, with the cortex unchanged or sometimes thickened and the glomeruli prominent. With a low power the glomeruli are larger than normal, and with a higher power apparently bloodless.

Although he had noticed swelling and proliferation of the glomerular epithelium he did not agree with the opinion of some that the capillary circulation is obstructed through compression of the capillaries by this proliferation, because in all the specimens which he had examined the loops of the capillaries were larger as a rule than normal, showing that the pressure was from within not from without.

He believed that the capillary obstruction is due to proliferation and thickening of the endothelial cells. The hypertrophy of the left

ventricle, noticed in all his cases, was due (1) to the presence of some toxic element in the blood, and (2) to obstruction of the circulation in the Malpighian bodies, which compelled the left side of the heart to do more work.

He suggested that the term glomerulo-nephritis ought to be limited to those affections in which there is an obliteration of the loops of the capillaries in the Malpighian bodies, and not applied to those affections in which there is only proliferation and desquamation of the glomerular and capsular epithelium, which are common to all forms of chronic nephritis.

SECTION ON OPHTHALMOLOGY.

FOURTH DAY—MORNING SESSION.

At the opening of the session, Dr. X. Galezowski, of Paris, France, read a paper entitled THE CURABILITY OF DETACHMENT OF THE RETINA.

He stated that the pathology of the disease is not entirely clear.

The writer had observed in twenty years, among 152,000 persons, 789 detachments, of which 87 were in both eyes, 63 in emmetropic and hypermetropic eyes, and 194 were traumatic; 18 occurred after extraction of cataract, 18 were syphilitic, and 4 in sympathetic affections. Tumor was found in 10 cases. Twice only he found detachment in retinitis albuminurica, although he frequently saw this affection. Cataract is very frequent in detachment of the retina.

Occasionally tearing of the retina is noticed, with the corpus vitreum introduced behind the retina, between the choroid and retina. He could say that the rupture of the retina is not so frequent, and considers it the consequence and not the cause of the detachment. Professor Von Graefe has said that the detachment is not curable, and the function of the retina is not restored. Dr. Galezowski had seen a case which showed alterations in the retina at the place of detachment, which had been completely cured. The patient gave the usual history of trouble with the vision, coming on suddenly and continuing for one or two or three months, with afterward recovery of sight. He explained the appearance of the fundus as seen by the ophthalmoscope, and illustrated them on the blackboard.

The conditions predisposing to detachment were said to be (1) choroiditis; (2) liquefaction of the corpus vitreum. In treating these cases he begins with antiphlogistic treatment, atropia, rest, etc., and he had in seven cases a complete cure—the retina completely adherent, and around the line of the separation atrophy, with pigment

deposit and choroiditis disseminata. The first indication is antiphlogistics; to apply every month two, three, four, or five leeches, then atropine, and warm and cold compresses alternately, and in the intervals between the leeches he applies derivative plasters. Inside of five months he has completely cured detachment of the retina. Mercury and potassium iodide are also useful where exudation is present or in cases of constitutional disease.

Fifteen years ago he proposed iridectomy to stop the inflammation of the choroid, but it did no good in that way, although it stopped the iritis. Now he proposes a new operation. He considers the exudation behind the retina as being of the same character as the effusion in pleuritis or peritonitis, and has had an instrument which he exhibited made to aspirate the fluid. The instrument is a syringe with a stop-cock and an aspirating-needle. He introduces the needle through the sclerotic at a considerable distance behind the ciliary body, and passes it into the globe for some distance. Then he exhausts the air by drawing out the piston. If the needle-point is too far in, no fluid appears in the barrel of the syringe, but on withdrawing the needle gradually the fluid appears, and one, one and a half, and two grammes, is generally obtained. There is no inflammation after the operation. By this means two out of seventeen cases operated on were completely cured, and there is a certainty of amelioration in all cases.

In old cases he introduces a curved needle from behind forward through the sclera and the detached retina, before introducing the aspirating-needle, and when the fluid is drawn off a catgut ligature is drawn through as a seton and brought tight.

Dr. Abadie, of Paris, France, spoke on the causation of detachment in myopes, setting forth the gradual stretching of the sclerotic in staphyloma and its drawing away from the retina as a cause of the detachment, with remarks on treatment.

Professor P. D. Keyser, of Philadelphia, spoke of Von Graefe's method of tearing the retina through the detachment with a needle of De Wecker's trocar, and of the double-needle method. He had never been able to get a permanently good result, although the immediate effect was sometimes very pleasing. He thought well of Dr. Galezowski's instrument, but wished to know how it would act in old cases.

Mr. J. Richardson Cross, of Bristol, England, said that there was no doubt that the subject was an exceedingly difficult one. He had treated a case with diaphoretics, had pushed pilocarpine,

and used the other commonly accepted means of relief, with no change till now. He had done sclerotomy in three eyes, two in one girl. One, in a woman, did no good.

Dr. E. Landolt, of Paris, France, recognized three kinds of detachments. The first is due to choroidal exudation; the second, detachment in myopia; and the third, traumatic detachments. For the first, the treatment is perfect rest and compress dressing. He quoted a case which was cured and had remained well for three years. In the second class surgical interference may be justifiable, because there is scarcely any hope of restoration of vision in the part affected. He illustrated by a diagram his mode of operating with a Graefe knife, and remarked on the possibility of sucking out vitreous if the syringe was employed. For the third variety, traumatic detachments, there were no general rules. Some are restored with simple rest, and others resist all treatment.

Professor E. Smith, of Detroit, Michigan, had been struck with the remarks of Doctor Abadie. In his first case he introduced an acupuncture needle, and the immediate result was brilliant; but the permanent improvement was *nil*. He preferred to do the operation suggested by Dr. Wolf, of Scotland, and would hope to get up adhesions to tie the retina down to the wound. Doctor Galezowski's operation looks rational, if he does not puncture the retina.

Dr. W. F. Holcombe, of New York, N. Y., remarked that he presumed Dr. Galezowski, when he spoke of a cure, probably did not mean complete restoration of vision, but only reduction of the detached portion, and its restoration to its original plane. He also described Sichel's operation.

Professor D. S. Reynolds, of Louisville, Kentucky, wished to know whether it were a fact in the eye as in other organs, that frequent tapping is followed by increased accumulation.

Professor A. W. Calhoun, of Atlanta, Georgia, wished to know what advantage is to be obtained by operating in cases of this kind of long standing. The eyes are blind, and vision is not restored, and the operation may set up inflammatory action. He had done sclerotomy many times, but without satisfaction.

Mr. H. Power, of London, England, found it difficult to understand how there could be restoration of vision in these cases of detachment. The pigment layer is detached from the retina and left behind, and does not re-attach itself again as before. He believed there might be an apparent restoration where the detached portion had hung down over the good part like a bag,

and after reduction of the detachment there was an apparent improvement in that part of the retina.

Dr. Galezowski remarked, in closing, that he had only done the operation in bad cases. If it had been done in all cases, we might get a better percentage of favorable results. An antiseptic might be injected into the cavity. It is possible for the retina to resume its function of vision, but even if it were not, the arrest of the process and saving the rest of the vision is of value.

Dr. J. A. S. Grant (Bey), of Cairo, Egypt, then read a paper contributed by Dr. Brugsch (Bey), of Cairo, who was not able to be present, on

THE PREDISPOSITION TO GLAUCOMA.

He said that increased tension, the recognized test-symptom of glaucoma, might be produced in two ways, either by increased secretion, or by retention of the secretion, when normal in amount. He was inclined to think that the theory of retention was, at least in some cases, the one which appeared reasonable. It was a question whether eyes with small corneæ were more liable to be affected, and he gave some statistics which seemed to point in that direction.

The predisposition of the Semitic race to glaucoma is remarkable. In other races it occurs in the proportion of one to one hundred, here the proportion is four to one hundred. He had been surprised by finding children affected with glaucoma. The cornea of the pure Egyptian is decidedly smaller than that of other races, and he had been endeavoring to find whether the whole globe was also smaller, but his researches had been hindered by the trying climate, which produced decomposition in fresh eyes so rapidly. After iridectomy there appears to be a relaxation, and even an enlargement, of the corneal circle, as you can see if you notice that the coloboma will sometimes appreciably enlarge a considerable time after the operation.

AFTERNOON SESSION.

Professor A. G. Sinclair, of Memphis, Tennessee, reported

A CASE OF RETINAL GLIOMA ON BOTH SIDES.

A young child was brought to him with the history that some time before it was noticed not to see well, and soon appeared to be blind; then a white and somewhat lumpy appearance was observed in the pupil. Soon afterwards black lines were noticed over the surface of this appearance, the retinal vessels. On examining the eye Dr. Sinclair found congestion of the conjunctival and episcleral vessels, pupil slightly

dilated, tension somewhat above normal. The same appearance was observed in both eyes, except that the left cornea appeared somewhat abraded in the center. Enucleation was proposed and was consented to. The right eye was removed together with about one half-inch of the optic nerve, and the left eye and the whole contents of the orbit, as far as possible without cauterization.

A careful and complete pathological examination of the right eye was made by Dr. T. Mitchell Prudden, who reported it as a *glio-sarcoma*.

The left eye and its appendages were examined by Dr. Carl Heitzmann, of New York, and his report gave the same conclusion. These two examinations and reports were made each without any knowledge of the other.

The case has now been observed for six years since the operation, and there appear to be no signs of the return of the disease, and the child is perfectly healthy. No heredity was discovered.

Professor Keyser, of Philadelphia, remarked that in cases of this sort he was doubtful if the child would live more than eighteen months or two years. One case of his had lived seven years, and one died in eighteen months after operation of glioma of the brain. He was doubtful if the successes were cases of true glioma.

Mr. Henry Power, of London, England, expressed the same doubt, although he has had some successes also.

Dr. Galezowski, of Paris, has operated for the removal of this disease, and one recovered and was afterward healthy. He had only seen four cases.

Professor D. S. Reynolds said that he thought it is a malignant proliferation conveyed through the lymph-channels. When it originates in the retina he saw no reason for its not being successful. He had had a case where he had enucleated both eyes, which were invaded simultaneously and equally. There was immunity for ten years.

A propos of Dr. Reynold's remarks as to the origin of glioma, whether in the optic nerve or retina, Dr. R. L. Randolph, of Baltimore, Maryland, remarked, that in a microscopic examination of a gliomatous eye very recently, he found the optic nerve-fibers pressed apart by the growth, which latter extended up to the severed end of the nerve. The whole optic nerve tissue was disorganized and, so to speak, monopolized by the growth. He inferred that the growth must have had its origin in the optic nerve.

Dr. H. C. Paddock, of New York, N. Y., read the next paper, entitled

ERGOT OF RYE IN OPHTHALMIC PRACTICE.

No mention is made of this remedy in the earliest works on medicine, and even until very lately it has been considered to be a medicine for the obstetrician alone, and only to be good to stimulate contraction in the uterine muscle. The action of ergot is to promote contraction of the blood-vessels, as well in other organs and tissues as in the uterus, and especially in the blood-vessels of the eye. Soelberg Wells, in his work mentions it as a valuable remedy in congestions, episcleritis, etc., while Hammond says it possesses the property of contracting unstripped muscular fiber. It is certain that it does diminish the caliber of the vessels, and has a good effect in obstinate affections. It is a rational remedy, and nothing more is claimed for it than its general therapeutic properties. He gave a few cases in which it had seemed to exert a markedly beneficial effect.

In the case of a woman with conjunctival congestion and pain and discomfort, the whole trouble was stopped on the third day. In still another case, twenty-five years of age, there was conjunctivitis, iritis, retinitis, and ciliary neuralgia. Under ordinary treatment she improved for four or five weeks and then came to a stand still. She was then given ergot, and was discharged cured in a few weeks. In regard to the use of ergot, he begged to remark that it is a reliable drug, that it must be used in maximum doses and for several days, and that it is a good tonic; that atropia should be used in iritis, and reliance on general treatment for any complication that may arise, was advocated.

Mr. Henry Power, of London, England, then read a paper written by Mr. P. H. Mules, of Manchester, England, who was unavoidably absent, entitled

EVISCERATION AND THE ARTIFICIAL VITREOUS.

The object of the paper was stated to be to lay before the section the results of an operation which was intended to produce an improved appearance over the result in evisceration alone, with a clean cavity free from muco-pus. The mode of shrinkage after evisceration was discussed, and a blackboard demonstration of the method of operation given. The incision is made through the conjunctiva around the cornea, elliptical with its long axis horizontal. The conjunctiva is dissected back for a short distance, and an elliptical incision made through the sclera of about the same size and in the same position as that in the conjunctiva. The contents of the globe are then carefully cleared out, which is easily determined by the view of the white sclerotic in the interior of the

eye. The glass ball is then introduced, the edges of the scleral wound carefully fitted together over the ball, care being taken to have no tension at the point of union, united by sutures, and the conjunctiva then brought together and sutured. There may be considerable reaction and some pain, which is treated in the usual manner. Mr. Power had done the operation about a dozen times, and had had three bad results. One suppurated, and in two the wound yielded and the glass globe was pushed out. Catgut sutures are used.

Mr. Cross, of Bristol, England, thought Mr. Mules' operation would be a permanent one. The shield over such a globe has a better motion than any artificial eye on a natural stump can have, because the muscles have been placed in a position more nearly corresponding to that in the natural eye. It does not make any difference whether one use a glass globe or a silver, or, as has been lately, a celluloid one. An advantage of this operation is that the lower lid is preserved, and is not gradually obliterated so that the shell cannot be retained. It cannot be said that Mules' operation will prevent sympathetic ophthalmia, because we cannot entirely clean out the globe. There may be affection of the lymphatics exterior to the globe already before evisceration, and it is, of course, impossible to reach them in this operation. Mules' operation is not to be compared with enucleation in sympathetic ophthalmia. We operate in sympathetic ophthalmia to save the other eye. It is not a question of appearance, but of sight.

Dr. Galezowski, of Paris, France, would divide the question into two parts—evisceration and the introduction of the glass ball. He saw this first fourteen years ago, with Professor Richet, in Paris. Great inflammation resulted, and it was not possible to introduce the glass ball. Enucleation was done six months after and the patient got well. He saw another case four months ago. Six months previous a good operation had been done, but a sinus had formed in the region of the wound. Treatment with antiphlogistics, antiseptics, etc., was of no avail. Enucleation was done and all was well. One year is not long enough for a final conclusion in the matter of result. In sympathetic ophthalmia there must be danger if we leave the smallest piece in the eye, and the enucleation must be completely and carefully performed, so as to leave none of the sclerotic attached to the nerve.

Dr. Baker, of Cleveland, Ohio, as an illustration of the ability to retain a foreign body in the eyeball with impunity, related a case which had occurred to him. A man had his eye burned

severely with sulphuric acid, so that an unsightly ball was left, with no cornea. He put in a glass button like a collar-button, and the man had been wearing it comfortably ever since.

Professor Keyser, of Philadelphia, Pennsylvania, stated that he would try Dr. Mules' method. He had had very severe inflammation occur after evisceration. To illustrate the danger of sympathetic ophthalmia, when enucleation is not effectually performed, he related a case where a small button of sclerotic was left on the divided nerve. He advised to get it all out, but it was not thought worth while, and sympathetic ophthalmia set in. He believed it was better to do evisceration early.

Dr. Dibble, of St. Louis, Missouri, had seen two cases of bony deposit inside the sclerotic, and believed that in such a case the pressure of the glass ball would produce irritation and perhaps sympathetic trouble.

Professor E. Smith, of Detroit, Michigan, had seen Dr. Power do one of these operations, and and although Dr. Power had predicted considerable chemosis and severe reaction, there was no trouble whatever, and a happy healing resulted. There was not a bad symptom. He laid stress upon the fact that the edges of the cut sclerotic should just meet, not overlap or strain.

Dr. R. L. Randolph, of Baltimore, Maryland, read a paper contributed by Dr. H. Gifford, of Omaha, Nebraska, entitled

FURTHER CONTRIBUTIONS TO THE STUDY OF SYMPATHETIC OPHTHALMIA.

It related to the posterior lymph-stream, and detailed the results of experiments with injections of India-ink and anthrax. The course of the injections was ascertained by examining the eyes at periods after injection, and it was found that, even in neurectomized eyes, the coloring matters or anthrax bacilli had reached the brain from the posterior chamber; even where the cerebral end of the cut nerve contained none, showing that there is a current from the posterior part of the eye back to the brain, independent of the channels of the optic nerves.

Mr. J. Richardson Cross, of Bristol, England, next contributed a paper entitled

RETINOSCOPY; IT PROMISES A RAPID AND RELIABLE METHOD OF ESTIMATING ERRORS OF REFRACTION, AND IS A TEST OF THE GREATEST PRACTICAL VALUE

He stated that the full correction of the refractive error is not the one that is always most likely to be accepted by the patient, when determined by the upright or direct image method. With trial glasses it is often necessary to use atropine, but in retinoscopy he has only found it necessary

to use atropine in cases of spasms of accommodation. In all other cases cocaine is quite sufficient. Either the plane or the concave mirror may be used. The production of the image at the far point of the eye in myopia is the important unit in the question of retinoscopy. The shadow observed in myopia is that of the erect image projected from the observed eye. With illumination, no movement, and no shadow, the observer must be near the conjugate focus of the rays. It is a usual thing to have one constant point to calculate from and work from, and the usual standard of a little over a metre is objectionable, because it is necessary to get up and approach the patient to make every change of glasses. Dr. Cross could use an optometer made by Doyné, which he exhibited, at a distance of eighty centimetres, which obviated the necessity of moving with each change of the patient's glass. Mr. Cooper has brought out a somewhat more complicated optometer, by which you are enabled to sit at the full distance and turn the disk.

The proper point to estimate the refraction in the patient's eye is the macula, but it is not easy; the disk is easier, but not so accurate on account of the occurrence of the physiological cups so often. The writer preferred to take a point midway between the two, which could easily be done by making the patient look at the other side of the face.

The results of retinoscopy are quite satisfactory; unsatisfactory in only about ten per centum.

The differences between the result with and without atropia are slight in degree, in a spherical direction, and do not exist as to the cylindrical correction. A much higher degree of latent hypermetropia is uncovered by retinoscopy than by trial lenses.

Professors Keyser and Reynolds rose to questions of information as to the abolition of the accommodation in the use of the method, and

Dr. Galezowski stated that he liked the method, but did not like the name. He believed the shadow to be produced by the changes in the cornea, and that the proper name is keratotomy, An advantage is that one can make a diagnosis of the reflection without atropia.

Dr. Galezowski's assistant, Dr. Parent, had described it very accurately, and used the name keratotomy. In proof of its being the shadow in the cornea, the best diagnosis of staphyloma of the cornea could be made by this method.

There is no reason at all for the term pupillotomy.

Dr. A. R. Baker, of Cleveland, Ohio, also read a paper on

RETINOSCOPY.

Although retinoscopy has been extensively employed by general practitioners and specialists in England and France, it has been almost entirely ignored by German and American practitioners. While many competent observers have written extolling the method, no less an authority than Professor Hirschberg, of Berlin, remarked in a laughing manner, when the writer asked his opinion of the value of retinoscopy, "Oh, that is a lazy English method, and don't amount to much." And Dr. Loring, in his excellent work, thinks that it does "nothing which cannot be more easily and more expeditiously performed by the upright image."

Probably one reason for the rejection of this method by Professor Hirschberg and Dr. Loring, is their extreme accuracy in the use of the ophthalmoscope. But this accuracy was, he believed, limited to only a very few, and it required a large amount of clinical material to become proficient, and few, if any, master the ophthalmoscope sufficiently under forty years of age to become proficient.

In teaching the method it is better to select an emmetropic eye for the first, and dilate the pupil. A concave is more convenient than a plane mirror. If the plane mirror is used it is to be remembered that the image will move against the mirror in myopia and with it in hypermetropia, and the reverse with a concave mirror.

Professor S. M. Burnett, of Washington, D. C., proposed the name scioscopy. He prefers the plane mirror.

Professor A. W. Calhoun, of Atlanta, Georgia, wished to know if all cases were corrected by this method so that they did not come back dissatisfied.

Mr. Cross, in closing, stated that retinoscopy was a name in general use now, and therefore it was better not to change it. He thought he would continue to use it. It certainly was not dependent on the view of the cornea, and he certainly never should call it keratotomy.

SECTION ON OTOTOLOGY.

FOURTH DAY.

Professor E. DeRossi, of Rome, Italy, read a paper on

RESEARCHES ON THE MICRO-ORGANISMS IN THE EUSTACHIAN TUBE OF HEALTHY INDIVIDUALS.

When it was established that there existed in the saliva and in the follicles of the tonsils of healthy men indisputable evidence of the presence of pathogenic micro-organisms, and especially of the

presence of the coccus pyogenus aureus, it seemed to me desirable to undertake certain experiments to ascertain whether or not there existed micro-organisms in the eustachian tube; and if so, to ascertain their peculiarities. I fully realized the difficulties of obtaining positive and indisputable results. I assure you, however, that I have taken all the necessary precautions; that I have observed all the indispensable minutiae which present scientific observations exact.

The method of procedure has been as follows: A fine platinum wire was fastened into a silver catheter. This wire was of such a length that it could be projected from the tubal end of the eustachian catheter to the distance of one centimetre. The terminal end of the platinum wire was bent so as to form a loop in order to retain a sufficient quantity of the mucus collected from the inside of the eustachian tube.

Before sterilizing the instrument with the usual care the wire was withdrawn into the interior of the sound, then the tubal extremity was sealed with a thin coating of collodine and every catheter so prepared was placed in the sterilizing tube.

In introducing the catheter it was passed as far as possible into the mouth of the eustachian tube, and by pressing on the proximal end of the platinum wire the thin coating of collodine was broken and the looped end of the platinum wire projected to the distance previously determined. It was then withdrawn to the inside of the catheter. The loop of the platinum was immediately employed for the culture plates of gelatine, and later the colonies which were developed were cultivated in tubes.

The experiments were begun on the 13th of April, with the assistance of Professor Guarner, of the Institution of Pathological Anatomy in Rome. In that institution, through the kindness of Professor Marchiafava, all the necessary appliances were at our service.

The mucus was taken from the eustachian tubes of twelve persons at different times between the 13th and 30th of April. From each loop of wire two attenuations were used for plate culture. Positive results were obtained only from six of the cases—six out of twelve.

Case 2 gave two successful cultivations. The planting took place on the 22d of April, and by the 1st of May the colonies were developed. In the plantings from cases 1, 7, 8, 9, and 10 the colonies were well developed on the 3d of May. The plates belonging to the other cases remained free from organisms.

The examination of the colonies developed presented the following features:

Plate No. 2 in the first attenuation, the colonies were of a yellow color, and the surrounding gelatine was fluid. Examined under the microscope it revealed the streptococcus. Further from both the first and second cultivations a colony which was of a white color was developed which revealed under the microscope the grape form, staphylococcus.

Plate 1 exhibited two colonies, one gray, the gelatine remaining solid; the other white, the gelatine liquifying. Under the microscope the white colony revealed torules; and the gray colony, with the gelatine unchanged, gave the streptococcus.

Plate 7 presented a round colony of a yellow color, the gelatine fluid. The microscope demonstrated the presence of short rods (bacilli) of a length varying from 0 mm to 1 mm and 0.5 mm thick.

Plate 8 gave two colonies, one round and of a yellow color; the other yellow, but irregular in form. In neither of these cases did the gelatine become fluid. The microscope revealed a staphylococcus from 1 to 1.5 mm long.

Plate 9 revealed a colony irregular in form and liquid gelatine. It was composed of filaments of different lengths; some from 10 to 12 mm, and others 1 mm long. The thickness varying from 0.5 to 0.7 mm.

Plate 10 revealed a colony of a yellow color and the surrounding gelatine fluid. It was composed of rods (bacilli) from 1 to 8 mm long and from 0.6 to 0.8 mm thick.

From all these colonies pure cultures were made in gelatine tubes and their identity established after the culture. Cultures were also made on potatoes; and finally from both the cultures in gelatine and the potato, transplantations were made to animal tissues.

It would be useless here to detail the individual cases. Experiments were made in the peritoneum and subcutaneous tissue in the rabbit and guinea pig, but in no case was any pathological development manifest. We are not to infer from this that in the mucus of the eustachian tube there never exists pathogenic organisms. It is necessary to investigate, and I present to the congress these notes as an interesting study worthy of being pursued.

Professor G. E. Frothingham said he had listened to Professor De Rossi's very interesting paper, presenting the result of his original researches in a field that had not been before investigated in this manner. The result of the investigations is such as confirms views he had for some time held from simple empirical observation. He had already expressed these views,

and his reasons for them, and would not now repeat. When he had declared these views, he had no knowledge of any investigation in this direction. It is peculiarly gratifying, when scientific discovery harmonizes with facts learned, empirically, as did Koch's discovery, that cholera bacilli cannot live in acid solutions, harmonize with the fact observed years ago, in the Pennsylvania Almshouse, that the use of sulphuric acid lemonade would sometimes prevent the spread of epidemic cholera. We cannot say the result is negative, because Professor De Rossi discovered no pathogenic organism. He thinks the presence of these organisms in great numbers, whether pathogenic or not, serves to irritate the membrane, and, under certain conditions of atmospheric change, and of the constitution of the patient, will lead to inflammatory action, acute or chronic. We should not forget this effect, since, in respiration of contaminated air, such vast numbers of germs may be lodged upon the nasopharyngeal spaces, and thus reach the ear.

If it be urged that *these* are not pathogenic, who can say under what circumstances they may not become so? The virus of syphilis, or gonorrhoea, is not pathogenic for some individuals; experimentors have bathed their eyes for hours with the secretion of Egyptian ophthalmia, and after exposure to wind and dust, for some hours afterwards, had suffered no attack. He thinks no one now knows nearly all the conditions that determine the question, as to whether certain of these germs are always harmless. Investigation must be made to decide this.

As the etiology of certain chronic diseases of the middle ear are so obscure, and the treatment of them so unsatisfactory, that it constitutes a reproach to otology, it becomes us to hail with welcome every carefully conducted scientific investigation in this direction. Professor De Rossi is a pioneer, has done good work, and is entitled to our thanks.

Dr. R. Tilley thinks it interesting to observe how different listeners get consolation and encouragement. While the previous speaker derived encouragement from the paper read in support of his views of the pathological influence of these organisms, I, on the other hand, derived encouragement from the paper in support of the idea, that the influence of certain organisms is, at present, greatly over-estimated. I am glad the observations have been made and reported to us, notwithstanding their negative results, even after the germs were introduced into the peritoneal cavity and into the subcutaneous tissue.

Dr. A. B. Thrasher, Cincinnati, Ohio. I am much pleased to learn of the admirable researches

of Professor De Rossi in this direction. That he has found bacteria in this region only accentuates what we have heretofore pretty well known, viz.: that all mucous membranes in contact with the external air contain bacteria. But these micro-organisms are by no means all pathogenetic. It appears to me that we are especially indebted to Professor De Rossi for his endeavors to discover which are the pathogenetic germs in this region. When the pathogenetic bacteria, or bacilli, have been certainly recognized, then can we say that we have made some satisfactory advance in this direction.

Dr. H. Gradle, Chicago, Illinois, remarked that the admirable researches of Professor De Rossi showed us an analogy between the eustachian tube and other mucous passages like the fallopian tubes, in which Fraenkel had found several pathogenic micro-organisms; or the mouth, in which numerous, harmless and virulent bacteria are known to exist. In otology it is necessary to distinguish accurately between exciting and predisposing conditions. The only exciting causes of suppuration are some micro-organisms, and occasionally chemical irritants.

If "taking cold," that is to say, temporary foreign circulatory disturbances, be accounted a cause of sudden inflammation of the middle ear, it is really an influence only which permits the bacteria, already present in the tube, but yet outside of the tissues, to multiply and enter the tissues and produce disease. Similarly, the presence of these bacteria in the tube explain why a nasal douche can, at times, produce acute inflammation of the middle ear, by conveying infectious material into the ear. Water, alone, could not give rise to such consequences.

Dr. Leartus Connor, Detroit, Michigan, stated that he is pleased to know a new method for the study of aural diseases. In normal conditions, we find that the bacteria cause no harm; it becomes important to study bacteria under such additional conditions as result in actual disease, and then we shall have light of added value.

Professor De Rossi, in closing, said "while the experiments I have narrated gave negative results, yet it is quite possible that under the depressing influence of cold draughts, or other causes, these organisms may contribute the determining influence which may result in some of those outbursts of inflammatory trouble, which sometimes come on so unexpectedly."

Dr. S. O. Richey, of Washington, D. C., then read a paper, entitled:

IS GENERAL ATROPHY OF THE CONDUCTING APPARATUS OF THE EAR IDENTICAL WITH PROGRESSIVE ARTERITIS DEFORMANS?

The name General Atrophy of the Conducting Apparatus may not be better than the numerous other names by which this affection is designated, but it has the merit of describing the the result of the process as we see it, instead of indicating it by some particularity of its course. Some attempt will be made to show its probable neurotic origin in the spinal system by its similarity to a more general affection, which has been supposed to find its source there.

Atrophic degeneration of the conducting apparatus of the ear may not be, to any great extent, inflammatory in any part of its course is *not* "pre-eminently local in its character" is influenced by constitutional dyscrasia, probably begins at the cervico-spinal nervous centres, and is propagated through the sympathetic nervous system, or the sensory spinal nerves, interfering with local trophic action.

Many pathological changes have been observed in the cavity of the middle ear at its examination after death, but we are not assured thereby that any given structural variation has been a result of this affection alone, as we are denied the opportunity of observing it during the progress of the disease. For many reasons, we must think it has a broader pathogenesis than that usually accredited to it, in the exposition of which we may be aided by the processes of analogy and induction.

Garrod says of Progressive Arthritis Deformans (Reynold's System of Medicine, Vol. 1, p. 555). "It is much easier to prove what rheumatoid arthritis is *not*, than to give the slightest "clue to what it is. * * * * ; it appears to "result from a peculiar form of malnutrition of "the joint textures, *an inflammatory action with* "defective power * * * * ; it usually occurs in weakened subjects, and exposure to "cold in many cases is the exciting cause of its "development." Weber (Jour. M. & N. Dis., Vol. VIII, 1883, p. 630) considers it of neurotic origin. In its entire history, except in the functional peculiarities of the locality attacked, it is almost a complete analogue of atrophy of the middle ear; in causation, symptoms, progress, and therapeutics. It would be an advantage to study the process as we can not in the ear.

Herewith is a parallel of the two affections:

PROGRESSIVE ARTERITIS DEFORMANS.	ATROPHY OF THE CONDUCT- ING APPARATUS.
(1) It is seldom fatal.	(1) We do not know it ever to be fatal.
(2) At an early stage swelling and the appear- ances of ordinary inflam- mation are prominent.	(2) At an early stage, this may be the cause of symp- toms of inflammation.

(8) When the effusion into the joint is absorbed the capsule is commonly found thickened, the cartilages are sometimes absorbed and the ligaments so much lengthened as to allow unusual mobility and dislocation.

(4) At the commencement of the process, slow absorption of the cartilages takes place, often followed by fatty degeneration, and the formation of ligamentous bands.

(5) Heredity does not seem to influence the affection, for one member of a family may be affected, and the rest be free.

(6) Is frequent among women, and rare among men.

(7) It occurs at any age, and individuals of weak frames whose extremities are cold are most liable to the disease.

(8) Everything debilitating, as uterine hemorrhages, prolonged grief, persistent mental distress, loss of rest and dissipation, damp dwellings, poor food, and all rheumatic influences are supposed active causes.

(9) By test, no uric acid, or urate of soda, thus removing rheumatism and gout from consideration as causes; reduction of phosphoric acid in the urine.

(10) The disease is slowly but steadily progressive. It may be stationary for a time, but exacerbations are sure to follow (Weber). There is slight remission, but no intermission during the rest of the patient's life (Haygarth).

(11) It usually begins as a subacute disease.

(12) It is very intractable. When the disease is not advanced, the affected joints few in number, and progress slow, the prospect is more hopeful, especially if there is no disease to keep up the impairment of the general health.

(13) There is generally aching of the affected joints prophetic of an increase of pressure in the atmosphere.

(8) When this happens it would be liable to cause tinnitus, or impaired hearing, or both; a flapping mt., and disarticulation of the ossicula.

(4) The result of this change has been seen in ankylosis of the ossicles, especially of the stapes; retraction of the mt., and bands of adhesion in the cavity.

(5) Complete correspondence.

(6) Is more frequent among women than among men.

(7) The symptoms are manifest at middle age, or just before, and at any later period. It may begin in the earache of children; cold extremities are common.

(8) Idem.

(9) No tests, so far as I know.

(10) There are long intermissions in progress, judged by the impairment of function.

(11) An open question.

(12) Idem.

(13) Any existing impairment of hearing, or tinnitus is increased under the same circumstances.

(14) Frequent mental depression without a known sufficient cause.

(15) It does not lead to suppuration, but to atrophy and more or less deformity.

(16) The treatment must be sustaining. Local treatment by blisters, iodine paint, and croton oil in the beginning. Later use counter-irritation; later still, friction and slight motion. Living in a moderate winter climate nutritious food, warm clothing, etc.

(14) Idem.

(15) Idem.

(16) This general line of treatment is the best with which we are acquainted.

Arthritis deformans begins in the smaller joints of the body, is symmetrical in appearance and progress with lesions of the tissues surrounding the joints, atrophy of the muscular tissue, and in old cases a state of fatty and connective tissue degeneration (Weber). The Lilliputian joints of the ossicula auditus are peculiarly exposed to atmospheric changes by their location, and are in one of the extremities of the body, for which reasons they would seem to be more liable to an attack of this affection than even the joints of the head or foot. Rheumatoid arthritis, beginning in the small joints of the extremities, advances to the larger joints of the body, in which fact we may find an explanation of the pressure and pain about the head, and the diminution of intellectual apprehension, so common in cases of profound deafness in advanced aural atrophy. It may furnish a better demonstration of the deafness of boiler-makers, ship-caulkers, and locomotive engineers. Taking its symmetrical onset and advance as a point in evidence of its neurotic origin, it may also explain the change in voice so commonly met with among the profoundly deaf, who have become so by slow and progressive stages, for the recurrent laryngeal nerve makes the connection between the cerebro-spinal nerve centers and the vocal chords very intimate. The recurrent laryngeal is supposed to get its motor power from the pneumogastric, and irritation of the pneumogastric in the upper part of the neck has been proven by experiment to cause heat and tingling of the ear. Jewell (Jour. M. and N. Dis. 1874, 426) "looks upon articular rheumatism, as well as certain painful affections of the joints simulating rheumatism, as produced * * * by disease of the nerve trunks or nerve centers, leading to decided local irritation at the peripheral termination of certain nerves," and Brown-Sequard has shown that nerve fibers going to the blood vessels of the various parts of the head, come out chiefly from

the spinal cord by the roots of the last cervical and the first dorsal nerves.

Arthritis deformans, nervous exhaustion, and aural atrophy (progressive deafness) very greatly resemble each other. Each follows causes exhaustive in character; does not terminate fatally; most of the symptoms are subjective and functional, and often unaccompanied with apparent structural variation. In each there is periodical hopelessness and discouragement. In nervous exhaustion and the ear affection there is diminished ability to fix thought on any subject (lack of mental control) and change in the voice; and Garrod claims that the irregular form of arthritis sometimes attacks the internal (middle?) ear and the larynx, and causes hoarseness and a peculiar dry cough.

In the deafness of boiler-makers, undisturbed control of equilibrium and the absence of vertigo argue against a theory of labyrinthine trouble. Buck (N. Y. Med. Rec., July 5, 1875) thinks the peculiarities of these cases due to rigidity of the ligament at the base of the stapes or to some change in the membrana secundaria, which to my mind is the most natural explanation.

Arthritis deformans may occur at almost any age; at first in the most exercised small joints, and if neglected it will progressively attack every joint in the body. It would rarely be recognized in the ear before the age of thirty, when the true function of the ear begins to be impaired in the late stage of atrophy, though it might have existed from the age of four or five years, at which time it would have been in its inflammatory stage.

Even in childhood a differential diagnosis might be made from the catarrhal affection, and we may reason that the disease at the foundation of the atrophic process may *begin at any age*, although the atrophy is a medium senilis.

Von Trolsch thought the disease without catarrhal symptoms should be given a different classification, but it is yet generally classed as a catarrh by authorities, though Pomeroy (Dis. of the Ear, p. 148) in a cursory way says: "I believe that the rheumatic diathesis, in many instances, has much to do with the obstinate character of this affection; the rheumatic inflammation, according to its well known predilection for fibrous tissues, finding a lodgment in the muco-periosteal lining of the drum."

Whether or not atrophy of the middle ear is of the same origin as arthritis deformans, it has a more extensive pathology than that allowed to it.

Dr. C. M. Hobby, Iowa City, Iowa.—I can recall seven cases of arthritis deformans in persons

related to each other not more remotely than second cousins, and occurring in the ramifications of a large family, and among more than thirty members of this family that I can now recall, there has been but one case of deafness.

Dr. L. Turnbull, Philadelphia, Pennsylvania, saw a case of this disease, arthritis deformans, on Canonicut Island this summer, every one of whose joints was immovable; he was like a chalk man. When I called to treat him for ulceration of the cornea his hearing was perfect. In another case that I saw every joint was out of its natural position; the hearing was perfect. (Inquiry being made, whether these gentlemen had examined the ears, and if they found any structural change; they answered, they *had not examined* the ears.)

Professor G. E. Frothingham, Ann Arbor, Michigan, said he had listened to Dr. Richey's paper with much interest, and all would admit that he had presented the theory with sufficient show of argument to challenge attention. While Professor Frothingham could not say that he is ready to accept the views presented, they are worthy of more careful consideration than could be given in an off-hand discussion of the subject, which, in the aspect in which Dr. Richey presented it, is new at any rate to him. It is true we have long acknowledged certain changes in the drum-membrane and the articulation of the bones of the ear, as due to a gouty or rheumatic condition, but the claims made in the paper he has not met with before. It is a subject upon which he must reserve his opinion until further consideration, as it does not fully accord with his present views. He is all the more glad on that account to hear this view presented, as progress is best made by interchange of views, and stimulation to research grows out of opposing theories. He will repeat "that man is a public benefactor who makes *two* blades of grass grow where one grew before." On the same principle, that man is a medical benefactor, who gives us two ideas where we have but one before.

In obscure subjects, like the disease under consideration, we should take into respectful consideration any plausible theory, and, for one, he is willing to devote to it careful study.

Professor E. De Rossi, Rome, Italy, inquired in what way Dr. Richey would distinguish between atrophy, due to the cause suggested by his paper, and atrophy of the ear consecutive to hypertrophic processes.

Dr. Richey stated that in the published abstract of his paper he had stated that the question of atrophy of the ear, consequent to hypertrophy, would not be raised in the paper. In answer to

Professor De Rossi, however, he said the *history* of the case would suggest an antecedent hypertrophic condition, by increased secretion and diminution of the upper air-passages at some time; periods of greatly impaired function with relief, often without foreign agency; a subacute catarrhal condition, with thickening of the membrane involved, due to passive congestion, the impaired hearing being noticeable, especially during the exacerbations; and the absence of neuralgic pain. In atrophy, following arthritis deformans, on the other hand, there is, if any, very slight thickening of tissue; no perceptible increase in secretion; very slow, and progressive impairment of hearing, intractable in character; and neuralgic pain.

He did not anticipate immediate acceptance of the views offered. How can ankylosis, with prominence of the malleus and incus, be better explained? Is *dry* catarrh an inflammation? Mr. Henry Powers, of London, England, in his remarks upon bacteria in the section on ophthalmology, had intimated that the germs might, by migration, produce the joint affection, and Dr. Richey could not see that such a supposition would invalidate the theory of a neurosis, but, on the contrary, would do much to support it. He believes the bacterial theory, in explanation of this obscure affection, to be the *other* idea in Professor Frothingham's mind.

As arthritis deformans begins in the smallest and most used joints in the body, it might exist in the ossicula auditus, and be absent elsewhere. Drs. Turnbull and Hobby had not examined the structures of the ears in the subjects mentioned by them; they *did not notice impairment of hearing*. Their observations are therefore negative, for, how often do we see distortion of the malleo-incudal articulation, without perceptible impairment of hearing.

Dr. C. M. Hobby, of Iowa City, Iowa, read a paper on

CEREBRO-SPINAL FEVER AS A CAUSE OF DEAFNESS.

Cerebro-spinal fever occurs very early in life, fourteen per centum of the cases of deaf-mutism thus caused having originated under one year of age among those personally examined, fifty-seven per centum originating under two years of age, one case noted at two months and five at three months. What would be the percentage if the proper value were given to the record "born deaf?"

Investigation has heretofore been mainly directed to consanguinity and prenatal influences as causes for deaf-mutism, and based upon the startling, apparent, proportion of congenital

cases. Reports of from thirty to sixty per centum of cases "born deaf" are acknowledged by many superintendents to be valueless; probably ten per centum will more than cover the congenital cases.

The nasal diseases of infancy are not so operative as has been supposed, a large proportion of so-called congenital cases being due to early intracranial disease.

Diagnosis of cerebro-spinal fever in infancy presents many difficulties. Cases of deafness attributed to scarlet fever have been found without tympanic lesions, and without ability to perceive sound either aerially or by bone-conduction.

In eighty-four deaf-mutes, where the deafness was caused by cerebro-spinal fever, sixty-three per centum had absolute loss of hearing in both ears; in about the same percentage no lesion was found in the tympanum by inspection of the membrane.

Blindness after cerebro-spinal fever is usually caused by suppurative choroiditis, but atrophy of the optic nerve, without ocular lesion, occurs (two cases reported). Deafness probably due in the vast majority of cases to disease of the labyrinth, but occasional lesion of the auditory nerve is probable; coincident paralysis of the facial is at least very rare; sense of taste is sometimes lost or affected. Blindness resulting at the same time with deafness is not very uncommon.

From the foregoing considerations, and from the comparison of the annexed tables, with each other, and their interpretation in the light of general observation and experience, I think the following conclusions are warranted:

1st. Cerebro-spinal Fever is prevalent throughout the United States, and is a constant factor in the production of deafness.

2d. That, upon the surface, it appears equal in importance as a cause for total deafness with Scarlet Fever.

3d. That when proper weight is given to the reports of causes of deaf-mutism, Cerebro-spinal Fever is the disease, above all others, producing total deafness, which the non-professional mind would class as "Fever," "Congenital," or "Unknown."

4th. That from reasons, some of which are specified above, and others of which are apparent to any physician who has studied the defective classes, it is probable that not more than ten per cent. of the cases of deaf-mutism are actually congenital.

5th. That with this assumption there appears upon the face of the reports thirty-five per cent.

of cases of total deafness, for which no rational explanation is offered.

6th. That the greater part of this thirty-five per cent. result from intra-cranial causes, including under intra-cranial disease, affections of the labyrinth.

7th. That it is important that more thorough investigation of Cerebro-spinal Fever be made, and especially of its relation to deaf-mutism, with the hope, in the light of more perfect knowledge of its cause and methods of dissemination, the production of deafness from this cause, may be diminished, as much as the sources of blindness were cut off by vaccination.

Dr. L. Turnbull, Philadelphia, Pennsylvania, inquired if Dr. Hobby had employed the hearing-trumpet in testing his cases of deaf-mutism. Are there not epidemics of meningitis in the western countries? Has not syphilis an important agency in the production of deaf-mutism in young children?

Professor G. E. Frothingham said his examination of the cases of deafness produced by Cerebro-spinal Fever agreed with that of Dr. Hobby, as stated in his paper. He had found, in a large majority of cases, a normal appearance of the drum-membrane. He had met with mixed cases, of which the history pointed to cerebro-spinal meningitis so positively, that there could be no doubt that the patient had suffered from it; there had also been inflammation of the middle ear, and, in such cases, the pharynx and nasal cavities had shown an inflammatory condition; while these had been much benefited by treatment, those, presenting normal drum-membranes with pervious eustachian tubes, he had found to be hopeless. He had heard of improvement in one instance only; the family of a child informed him that it had partially recovered its hearing. He had once seen an infant with double optic atrophy from cerebro-spinal meningitis. For three or four months its condition was such that its attention could not be attracted by light, while the optic papillæ were glistening white. It, afterward, recovered sufficient vision to reach for large objects, and seemed to delight in viewing them. These cases could be explained by supposing that the destructive change had not involved *all* the nerve cells and fibres, in the rapidly growing child, but had left a small number capable of future growth.

Professor E. De Rossi inquired whether Dr. Hobby had made *post mortem* examinations in any of the cases?

Dr. Hobby had not; his study of the cases had been purely clinical. Those who have been so

fortunate as to have opportunity to examine those mute from this cause have found lesion of the labyrinth.

SECTION ON LARYNGOLOGY.

FOURTH DAY—MORNING SESSION.

The first paper was on

NASAL FIBROMATA,

by Professor W. E. Casselberry, of Chicago, Illinois. Under this title he included only neoplasms of a purely fibrous or predominating fibrous structure, which originate in the nasal fossæ, anterior to the naso-pharynx, and excluded those of a compound type, prone to occur in this situation, as fibro-myxomata and fibro-sarcomata, and also all those originating in the neighboring sinuses and in the naso-pharynx.

Recent literature has contained numerous reports of cases of naso-pharyngeal fibromata, but fibroid tumors originating primarily, in the nose itself are comparatively rare. The *Internationales Centralblatt für Laryngologie, Rhinologie*, etc., does not contain the report of a single case, and none are included in 265 cases of nasal neoplasm reported by Hopman and Schmiegelow. Mackenzie reported one case of his own, and two others, probably fibromata.

Growths in the nose and naso-pharynx, in a measure correspond in type to the structural elements of the tissue from which they originate. The fibrous layer of the mucosa is especially abundant in the naso-pharynx, hence the frequency of naso-pharyngeal fibromata, while in the anterior nares the superficial mucous layer predominates, and hence the more common occurrence of myxomata and the comparative infrequency in this location of the fibromata. Fibromata may, however, arise from any part of the nasal cavity, as turbinated bodies, septum and floor, but the vault, in the nose proper, is its favorite site.

Local irritation from traumatism or a perversion of the chronic hypertrophic inflammatory process may serve to excite a hyperplasia of the fibrous elements. The early symptoms are of a catarrhal nature, followed by obstruction and distension of the fossa. Nasal bones are forced apart, neighboring cavities encroached upon, eyes protruded and the deformity of "frog-face" possibly produced.

The tumor is not multiple, but may be lobulated, of dark red color, broad base, non-translucent and firm and resistant to the probe.

Microscopically, firm, dense, whitish, and enveloped in a smooth, fibrous capsule.

Microscopically, the fibers are grouped in bundles, or are simply closely interlaced.

Nasal fibromata tend to degenerate into sarcomata and to recur after removal, although if thoroughly extirpated and the base cauterized to the bone the prognosis should be good.

He gave a systematic table of eight cases, including the name of the operator, date, age, symptom, etc., treatment, and result.

In his own case, a lady aged forty years, the left fossa anteriorly was filled by a firm elastic tumor, and there was commencing "frog-face," but no involvement of the autrum or orbit. Septum, anteriorly, was deviated by pressure, far to the right. Naso-pharynx normal. It was removed piece-meal, in weekly sittings, by the galvano-cautery ecraseur, the knife electrode being employed when necessary to prepare a place for the loop to take hold. For the ecraseur he used, instead of platinum, steel piano wire, which on account of its resiliency offers resistance to tissues against which it is pressed, retaining or regaining its contour after contact, thus facilitating envelopment of the part. Under cocaine the operations were painless and comparatively bloodless.

The primary attachments extended along the horizontal plate of the ethmoid bone to the anterior surface of the body of the sphenoid. The patient remained well at the end of sixteen months. Of the seven other cases appended, the treatment in case 1, is not stated. In case 2, the tumor projected posteriorly, and was removed by forceps. In cases 3, 4, and 7, disfiguring and somewhat dangerous external operations were performed to give access to the tumor. In case 5, the tumor was successfully removed in fifteen sittings by a cold wire snare. In case 6, attempts at removal by ligature and forceps failed, and an attempt to cut through the base by a bistoury resulted in death from hæmorrhage.

In his own case the galvano-cautery used in the manner described was the one means which rendered a formidable external operation avoidable. But it must not be supposed that all cases will be susceptible of this means of cure. Enormous size and penetration into accessory cavities may render it ineffective.

In such cases electrolysis might serve to reduce the size to such a point that galvano-cautery could cope with it.

Efforts to envelop the whole tumor in the ecraseur for removal at a single operation will usually fall on account of adhesions and tight fit into nasal inequalities.

Mr. Lennox Browne, of London, England, in opening the discussion, said the subject was one of practical interest, and the paper was drawn on the lines on which a paper should be drawn,

that is when one listens to such a topic he likes to know at the same time what others have done on the same subject. He could not understand how in modern times one could perform an external operation without first exhausting intranasal means. A similar case he had not observed, but he agreed with the author concerning the treatment.

Professor M. F. Coomes, of Louisville, Kentucky, spoke of two similar cases, but of fibromyxomatous type.

Professor E. F. Ingals, of Chicago, Illinois, said he had not found cocaine in all cases to render operations painless; that the author was fortunate in having so little hæmorrhage, and that he had not been successful in causing the steel wire to heat as readily as platinum.

Professor F. O. Stockton, of Chicago, Illinois, said that a little iridium added to platinum gave the wire the necessary stiffness.

Professor Casselberry, in closing, said individuals differed in susceptibility both to pain and cocaine, still non-success was usually due to solutions too weak or not thoroughly applied. One can use weak solution first to test the patient before resorting to 20 per cent. solutions. The latter should be applied only by cotton applicator, and not by spray, thus avoiding systemic absorption. Perhaps platinum takes the glow from the battery more perfectly than steel, but steel heats for all practical purposes as well as platinum. The steel wire is, however, more liable to burn in two. A fresh piece must be used each time.

AFTERNOON SESSION.

Dr. John O. Roe, of Rochester, New York, then read a paper on

CHOREA LARYNGIS,

usually associated with an attack of general chorea. The author gives the history of cases where the affection was purely local as to its manifestation.

Miss S——, aged seventeen, delicate and nervous, after an attack of quinsy, developed a peculiar spasmodic and uncontrollable cough. She would cough rapidly ten or fifteen times, with a peculiar hoarse, barking sound, after which there would be an intermission of from one to three minutes. The cough was in sound so like the barking of a dog that she was the curiosity of the neighborhood, and known as the "barking girl." It did not continue during sleep. He tried electricity and local application without effect. Hypodermics of morphia and atropia produced only temporary relief. Benefit was derived from treating it as chorea. It suddenly ceased after seven months.

Another case, a healthy girl of thirteen, with much the same history, was mentioned, where there was no nervousness during the intermissions which lasted one to two minutes.

He mentioned a case of a young woman of sixteen years, with delicate health, where the barking cough continued during meals, and even during sleep, without awakening her. Spray of cocaine increased the trouble. These cases were not associated with uterine trouble. On examining the larynx he found but little congestion or inflammation. Before a paroxysm of coughing there would be a peculiar twitching of the vocal chords for a while, then they would be suddenly approximated and forced apart as the cough occurred. The movements were those of chorea. As a rule, the treatment should be systemic, in addition to local applications—arsenic, valerianate of zinc, iron, valerianate of atropia, hydrocyanic acid, morphia, etc.

Dr. Thorne, of Cincinnati, Ohio, mentioned several cases where chorea laryngis was associated with pregnancy, beginning in second or third month, and ceasing spontaneously just before delivery. He had one case where there was such an alarming spasm of glottis that he thought he would have to perform tracheotomy. The chords were constantly in motion between attacks.

Dr. Lennox Browne, of London, England, has seen a case where the disease appeared with each pregnancy, and disappeared just before delivery. Also three cases where it was cured by the removal of enlarged tonsils. He thinks a sea voyage the very best remedy.

In a paper on

THE DELETERIOUS EFFECTS OF TOBACCO ON THE THROAT AND NOSE.

Professor M. F. Coomes, of Louisville, Kentucky, said, that he considered smoking far more injurious to these parts than chewing. The smoke came into the mouth heated, and loaded with an irritating oil that would soon coat the mucous membrane were it not washed away by the saliva. Cigarette smoking is especially injurious, because the smoke is so universally inhaled, causing pharyngitis, laryngitis, and chronic irritation in the nose, not to mention the injury it may occasion to trachea and lungs. Where the smoke is habitually expelled through the nose, we find hypertrophies, congestion, dilated vessels, and a hemorrhagic condition. The sense of smell is impaired or destroyed. The potash salts may also have some effect in adding to the injury. Ninety-five per centum of smokers have something abnormal or unhealthy about the upper air-passages. In bad cases, he found chronic hyperæmia and inflammation of epiglottis, with con-

gested chords, and a hacking cough to remove the tough mucus; the voice tires easily.

A peculiar form of tobacco habit is what is known in the South as dipping snuff. It is prevalent among negroes and lower classes of whites. They chew the end of a twig so as to form a rude brush, then they continually dip this into a small box of snuff, and rub it over their gums and teeth. The gums being pushed down on the teeth are red and inflamed, from tobacco lodged between them and the teeth, and the whole pharynx is inflamed.

Professor F. O. Stockton thinks that as a nation we are the greatest chewers, and that chewers suffer most. He does not like potash salts used in the throat or the nose.

Dr. L. Browne smokes cigarettes, and considers them less harmful than any other form, if we don't inhale the smoke, and use a fresh mouth-piece.

The taking of snuff is an especially baneful habit, and likely to cause polypi. Singers should not use tobacco. He excludes potash salts, except, perhaps, the bromide, in treating the upper air-passages.

INTUBATION OR TRACHEOTOMY.

Dr. Max J. Stern, of Philadelphia, Pennsylvania, in a paper on this subject first gave a short history of tracheotomy from the earliest record to the present time. Some of the earlier statistics on the continent of Europe show as high as thirty per centum of recoveries.

In the United States our results have not had such encouraging results, due probably to the difficulty of obtaining consent to an early operation.

He also gave the history of intubation from the first catheterization to the perfection of Dr. O'Dwyer's tubes.

He quoted the following statistics to show the comparative percentage of recoveries: Intubation, 26½ per centum; tracheotomy, 26½ per centum.

The number of bad results due to accidents was very small in either case. From the following statistics it appears that up to five years of age intubation has decidedly the advantage, over that age tracheotomy has the best record:

Age.	INTUBATION. Per cent.	TRACHEOTOMY. Per cent.
Under 2 years.....	15	8
Between 2 and 2½ years.....	24	12
" 2½ and 3½ "	28 7-10	17
" 3½ and 4½ "	38 7-10	30
" 4½ and 5½ "	28 3-10	26
Over 5½ years.....	37 3-10	39½

Some of the advantages of intubation are that it is easier to gain parents' consent, does not require

skilled assistants or attendants afterward. Less care in the after-treatment is required.

Tracheotomy is extremely difficult in very young children. The usual time that the tube is left in the larynx is four to ten days. As the air can reach the lungs through the proper channels there is less danger to the lungs.

He advises that if the child be under three and a half years, intubation be performed if possible; between three and a half to five, to resort to either; if over five years, perform tracheotomy. Intubation was advised for adults; and that one do not perform tracheotomy if there should be much membrane in trachea. Intubation was recommended for the poor when they cannot get good nursing. Dr. Stern then closed by paying a high tribute to the good work accomplished by the perseverance and energy of Dr. O'Dwyer.

Dr. Charles Denison, of Denver, Colorado, believes in tracheotomy without a tube. He showed a gag which he had modified by removing the long levers that sometimes cause its displacement. It was kept open by a ratchet catch.

Professor W. E. Casselberry, in intubation, passes the index-finger not into the larynx, but to the arytenoid cartilages and entrance of œsophagus, instead of trying to lift the epiglottis. He advises wearing a finger-stall and practice on cadaver first.

SECTION ON DERMATOLOGY AND SYPHILOGRAPHY.

FOURTH DAY.

Dr. P. G. Unna, of Hamburg, Germany, read a paper, accompanied by microscopic demonstration, on

SEBORRHOEAL ECZEMA.

The author does not consider that the diagnosis "acute" or "chronic" eczema is a sufficiently exact and scientific one. For example, there are three distinct types of infantile eczema of the face; viz., a nervous, a tuberculous, and a seborrhœal. The nervous type is seen in the eczema of dentition, appearing upon a perfectly sound skin, usually first upon the cheeks and then upon the forehead. The eruption itches in proportion to the strength of the infant and the thickness of the epidermis. The vesicles, at times, suggest in their appearance and their reddened base herpes zoster, but the marked symmetry of the lesions and the tendency to relapse would prevent such a diagnosis. Seborrhœal eczema is entirely different in that the skin is not in a previously healthy condition. A seborrhœa has existed upon the scalp probably a few weeks after birth, which often spreads over the upper

portion of the face after becoming somewhat moist. There is less itching than in the eczema of dentition. For the latter affection a zinc-ichthyol ointment is recommended to be applied and covered with a mask, together with the bromide of potassium, internally, to allay nerve-irritation. In seborrhœal eczema sulphur should be added to the zinc-ointment. Ichthyol is useless, but resorcin acts well.

Dr. Unna regards all so-called dry seborrhœas as chronic inflammatory processes of the skin, and his studies convince him that there is no hypersecretion from the sebaceous glands which can clinically be considered a dry seborrhœa, produced by a deposit upon the surface of the product of these sebaceous glands. The disease which Dr. Unna has named eczema seborrhœicum is dependent upon a condition of, or rather change in, the coiled or sweat-glands, giving rise to the secretion of fat by them. An increase of fat upon the surface indicates increased activity when it proceeds from the sebaceous glands, but when the sweat-glands pour out fat it is because of the death of their endothelial cells.

Almost all seborrhœal eczemas have their starting point in the scalp. Three forms are described. In one, eczema seborrhœicum begins as a latent catarrh of the scalp, and goes through the stages of scaly formation and dryness, finally ending as a hyperidrosis oleosa. In the second, the scales heap themselves up between the hairs into fatty crusts, and cause the hairs to fall out. A corona seborrhœica upon the forehead, at the margin of the hair, is described, which is typical of this form of the affection.

The third form is that in which the catarrhal appearances are the most pronounced and in which "weeping" occurs, especially about the temples and eyes. This follows a simple itching pityriasis, and produces the appearance of a moist, shining eczema. A pityriasis or a seborrhœa may exist upon the scalp, while at the same time an eczema is present upon the face. The chest is affected with the crusty form almost exclusively.

Upon the arms there is a predilection for the flexor surfaces, which is explained by the rôle the sweat glands play in eczema seborrhœicum.

Upon the legs, early in the disease, we find only the large popular and crusting forms.

Patches of seborrhœa about the mouth and nose of old people are often the starting-points of carcinoma. In almost all cases of eczema seborrhœicum of the scalp, a simple, itchy scalliness of the ear is observed. A patch of eczema seborrhœicum is extremely stationary, remaining for years possibly without much change in size

and giving rise to only slight symptoms. Beginning upon the scalp or head, as a rule, it extends to other parts below in a very gradual manner; especially locating upon the face, sternal, and intra-scapular regions. This course is so often the rule as to be regarded as pathognomonic, as no other eczema or psoriasis runs this course.

When the whole body becomes involved it resembles closely pityriasis rubra. Psoriasis is often confounded with seborrhoeal eczema. The latter attacks the parts near the median line of the body, and is more stationary than psoriasis. It is preceded by a local seborrhoea, and the scales and crusts have a decidedly fatty character. The patches have also a peculiar configuration and spontaneously flatten out in the middle or upon one side. The prognosis is more favorable than in psoriasis. The cure is not easy, because the deep-seated sweat-glands are implicated. Sulphur is the great remedy for the disease. More active remedies for the scaly and crusty forms are pyrogallol and resorcin. Internal treatment is seldom required. Once cured, prophylactic measures, such as hygiene of the skin must be employed.

In the discussion which followed, Dr. J. Zeisler, of Chicago, Illinois, said he was impressed with the closeness of Dr. Unna's observations. Such cases are frequently seen here, and are called seborrhoea. He had regarded it as a hypertrophy of the endothelium of the sebaceous glands.

Professor G. H. Rohe, of Baltimore, Maryland, said no one was in a position to call in question any statements or claims made by Dr. Unna, as similar work had not been done by others.

Professor Robinson, the president, said there is much difficulty in classing eczema on account of its great varieties, causes and modifications.

As regards seborrhoeal eczema, seborrhoea and eczema existing together is not uncommonly observed. He can understand how they can go hand in hand, but does not see how the fat can have an effect as a local irritant in producing an eczema.

In closing, Dr. Unna said the point had been misunderstood; that he did not believe the fat was the cause of the irritation. He had merely spoken of the clinical side of the question. He was at the present time experimenting with some thirty cultures of micro-organisms from seborrhoea, and believed that a parasite was the cause of the irritation at a point where the fatty matter existed.

What we have called seborrhoea sicca is not a hypersecretion, but an inflammatory affection.

Warts of the scalp and of the penis he also thinks are due to a parasite which finds its

pabulum upon the skin of the penis and also upon the fatty matter from a seborrhoea of the scalp.

MULTIPLE SARCOMA OF THE SKIN.

Professor G. H. Rohe, of Baltimore, Maryland, presented a patient with this rare disease, characterized by the development within the skin of multiple sarcomatous tumors. The patient was a man of about thirty years of age. The tumors were of about the size of an English walnut, and were situated upon the regions of the back and shoulders, legs and thighs. He was also suffering from tuberculosis of the lungs, and had also partial hemiplegia.

Professor A. R. Robinson, the president, gave a report of

A UNIQUE CASE OF PROGRESSIVE MELANOSIS OF THE SKIN,

the peculiarity consisting in the progressive nature of the affection, its long duration, and the situation of the pigment. The patient was a female who, twenty-one years ago, at the age of eight, first noticed a small, dark spot upon the side of the temple. There were no subjective symptoms of pain or tingling in the part. She had suffered from chills and fever. The lesion consisted of pin-point-sized non-elevated dark or bluish-dark spots, which formed a patch occupying the whole lateral surface of the forehead.

Microscopical examination of the skin showed the epithelium to be of normal thickness. The rete mucosum contained dark-brown pigment-granules, which were also seen in lower rows of the pavement epithelium.

Discussing the paper, Dr. Unna said he had been impressed with the blue color of the patch as represented in the colored drawing contrasting with the dark-brown color of the pigment seen under the microscope. He asked if clinically the disease presented this blue color, and whether the corneous layer was especially thick. He had never seen a similar case, and regarded it as interesting and unique.

Professor Robinson answered that the color was faithfully represented and that the corneous layer was not thick.

A paper was then read by Dr. A. H. Ohmann-Dumesnil, of St. Louis, Missouri, on

DOUBLE COMEDO.

Dr. Dumesnil said that he had found double comedo in two and one-fourth per cent. of all male patients in hospital practice. It occurs upon all portions of the body excepting the limbs and forehead.

In regard to the formation, he does not regard

it as congenital, but that two contiguous comedones become fused by the absorption of the intervening septum. Multiple plugs of sebaceous matter are found, having only one central common cavity and possibly three or four external openings, all connected within. This is readily demonstrated by cutting the bridge of skin between them.

The mode of production is the same as in the single comedo, and the cavity is the analogue of the single form. This explanation he regarded as more reasonable than to suppose the existence of a number of anomalies in comedo-formation, with the necessity of having an anomaly to account for each new case.

Dr. Unna, in discussing the paper, said he believed that double comedo never developed in a totally healthy skin—that at some time there had been an inflammatory process followed by cicatrization. He had observed many cases and always found evidences of these changes, and a scar could usually be discovered.

Dr. Dumesnil did not believe in the inflammatory process theory, and had not observed scars in many cases. He hoped some one would be able to make observations upon the disease in the formation-stage.

The next paper was by Dr. H. Watraszewski, of Warsaw, Poland, on

TREATMENT OF SYPHILIS BY INJECTION OF INSOLUBLE MERCURIC SALTS.

There is nothing new in the injection of insoluble salts of mercury in syphilis. The author has already made a communication on the same subject. He has since pursued his investigations and has been led to give the preference to the yellow oxide of mercury. The injections are to be made about once each week, and from four to five injections have been found sufficient to cause a disappearance of the symptoms. He has never had any difficulty from abscesses.

Cases come to the special hospital for syphilis, with which he is connected, from all parts of Poland, having been treated by other methods. Some have the disease in its worst forms, and present all the conditions favorable for a thorough test of this treatment. The author has had results follow the injection-cure which are very favorable and warrant his enthusiasm. The feature of the method is the small number of injections required, twelve to twenty being required for a course of treatment, and only four or five to cause a disappearance of the lesions at any time present.

Once each week a Pravaz syringe of the following solution is to be injected deeply into the tissues.

℞. Hydrargyri oxyd. flav. 1.0 gram.
Gummi arab. 0.25 centigram.
Aqua destillat. 30.0 grams.

M. S.—Shake and inject.

A Pravaz syringe of the following represents about four centigrams, or two-thirds of a grain.

A calomel-solution made in the same way, but three times as strong, has been used by the author, who finds that while it is beneficial the reaction and irritation caused by it are much greater.

In the discussion, Dr. Gotthell, of New York, N. Y., said that during the past few years we have had brought forward a variety of new methods for the injection of the mercuric salts. He thinks that patients in other countries must differ from those in America, for here they will not submit to this method. Internal treatment, he believes, must here at least remain the more common course. He asked if the injection-course was employed only in the severer cases or as routine treatment.

Professor J. V. Shoemaker, of Philadelphia, Pennsylvania, said he had treated many cases of syphilis by this method during the past seven or eight years, and held it in high esteem, especially for old, chronic cases, where treatment had failed. He made the injections in the arm, or wherever there was plenty of fatty tissue, in the inferior scapular region and the back, and deep into the muscular tissue of the gluteal region when the patient was thin. He employed the bichloride in a watery solution, and gave as high as half-grain and even grain-doses when the patient had been under treatment for some time, making the injections once in about three days. He had never seen an abscess result.

Dr. Klotz, of New York, N. Y., said he had had considerable experience with the hypodermic method, both in public and private practice, and he was surprised to hear the remarks of Dr. Gotthell relating to an inability to employ it with patients in this country. His private patients had never objected, when they were intelligent men and the process had been explained to them. In fact, when a relapse occurred they would voluntarily return and ask for it. There is some pain, but the patient will stand it, and the results compensate for it.

Dr. J. Zeisler, of Chicago, Illinois, was surprised to hear what Professor Shoemaker had said. He had considered that the salts should be injected daily. The more we give at a dose the greater is the danger, and he asked if such a large dose as a grain was not very dangerous to the life of the patient. In Vienna, when he had used the method, the rule was to give one centigram in

the syringe-ful. He thought the good feature of the method proposed by the reader of the paper was the small number of injections necessary to get the good results claimed.

Professor Shoemaker, in answer, said that some one in London had reported fifteen hundred cases treated, in which one-third grain of bichloride had been the dose used.

He usually began with one-tenth grain, and increased it until the physiological action had been produced, or the larger doses used.

Dr. Watraszewski, in closing, said that we must not use the hypodermic method indiscriminately, but must individualize. He saw each year many of the worst imaginable cases. The patient would throw pills out of the window instead of taking them. Injections would be improperly and imperfectly performed; but here we have an accurate, sure, and safe means of dealing with all cases, and in severe cases the cures were much more rapid than by other means. It has proven especially beneficial in his hands in syphilis maligna of finger, and in late syphilis.

SECTION ON PUBLIC AND INTERNATIONAL HYGIENE.

FOURTH DAY.

A paper by Tomassi Crudelli, of Rome, Italy, on

FACTS AND THEORIES RELATING TO THE CAUSE, NATURE AND PREVENTION OF MALARIAL FEVER, was read and the bacillus described.

Dr. George T. Maxwell, of Ocala, Florida, then read a paper on

THE INFLUENCE OF CLIMATE ON THE PRODUCTION OF CHOLERA INFANTUM,

in which he took the position that heat was an essential factor in its causation. The general scope of the paper was that the cause of this disease is not yet well understood.

THE HISTORY AND PRACTICAL APPLICATION OF STEAM AS A DISINFECTANT,

was the title of a paper read by Dr. A. N. Bell, of New York, N. Y., which was followed by papers on "The Sanitary Inspection of Railroad and Passenger Cars," by Dr. R. Harvey Reed, of Mansfield, Ohio; "Public Hygiene," by Dr. W. C. Cook, of Nashville, Tennessee; "The Clinical History of Continued Malarial Fever," by Dr. B. D. Taylor, U. S. Army; "A New Method of Detecting *Trichina Spiralis* in Meat," by James A. Close, M. B. (Toronto), L. R. C. S. E.

SECTION ON CLIMATOLOGY AND DEMOGRAPHY.

FOURTH DAY.

Dr. Titus Munson Coan, of New York, N. Y., read a paper on

AMERICAN MINERAL WATERS, WITH REMARKS ON CLIMATE.

He discussed the subject under four topographical headings: Springs of the Atlantic, the Southern Central, the Northern Central, and the Western or Pacific States. He called attention to the fact that much of the Eastern area of the country was of earlier formation than that of Europe; that, in fact, this part of the New World was, geologically speaking, the Old World, and not the New. This fact explained the comparative absence of thermal springs in the East, while the Western area, including but thirty-nine per centum of the total area of the country, yet contained eighty per centum of the known thermal springs. The range of the American mineral springs in their chemical constitution is very great, and their curative waters are as important as those of Europe. In some parts of the country, as in New Mexico and in Nevada, it is often easier to find an alkaline or a saline spring than a stream of pure water. Dr. Coan gave a rapid survey of the subject, mentioning the typical springs which are suitable for the cure of particular diseases, and at which good hotel or other accommodation can be found. He remarked upon the comparative absence of well-appointed sanatoria, or cures, at the American springs, and the consequent lack of systematic treatment, leading both patients and physicians to underrate the curative value of spring-treatment. Climate is an adjunct element of the utmost importance in spring-treatment; and the best climate in the country is that of California and Oregon. The climate of the Hawaiian Islands is probably the most equable that is known, at the comfortable range of about 70° to 80° F., and those islands are destined to become a health resort for Americans.

Dr. Richard J. Nunn, of Savannah, Georgia, read a paper entitled

A CONTRIBUTION TO THE STUDY OF CLIMATIC AND OTHER PECULIARITIES OF LOCALITIES WHICH DETERMINE EXEMPTION FROM ENDEMIC PLAGUES.

The object of Dr. Nunn's paper was to determine whether the extraordinary exemptions from certain diseases in Savannah are due to any special topographical or sanitary conditions in that city.

Vesical calculus, typhoid fever, typhus fever, puerperal fever, are absent; Asiatic cholera

visited the city only once (1866); diphtheria and exanthematous diseases are mild; membranous croup is exceedingly rare; cholera infantum is mild and exceedingly rare; cerebro-spinal meningitis has appeared but once in the city; sun-strokes are very unusual; erysipelas is not common; yellow fever has occurred but four times as an epidemic; dengue is infrequent.

The varying death-rate between the white and black races was referred to. Between 1856 and 1860 the black mortality never reached that of the whites, while since the war the death-rate among the negroes has reached double that of the whites. The changed social condition of the black race is supposed to be responsible for this variation. Formerly the negroes were almost entirely exempt from consumption, now they are extremely liable to this disease. The same may be said of syphilis.

The following papers were then read:

"The Injurious Effects of Overcrowding in Cities," by Dr. A. Wernlich, of Coslin, Germany; "The Thermometer as a Climatological Instrument," by Major Charles Smart, Surgeon United States Army; "Vital Statistics and Medical Geography," by Alfred Haviland, M.R.C.S., of London, England; "Western North Carolina as a Health Resort," by Dr. Henry O. Marcy, of Boston, Massachusetts; "Therapeutic Influences of the Climate of Southern California," by Dr. P. C. Remondino, of San Diego, California, and "Short Notes on the Mineral and Thermal Springs of California," by Professor W. F. McNutt, of San Francisco, California.

SECTION ON PSYCHOLOGICAL MEDICINE AND NERVOUS DISEASES.

FOURTH DAY.

Dr. S. S. Bishop, of Chicago, Illinois, read a paper on the

PATHOLOGY OF HAY FEVER.

He believed that full reliance could never be placed in the pollen theory. The very fact that hay fever recurred upon the very same day of the year in many cases, irrespective of the late or early coming of the seasons, was a proof against it. He believed it was of nervous origin, and would designate it by the term nervous catarrh.

Dr. Channing thought it should hardly be dignified with the term of neurosis. He supported the pollen theory, and stated that removal to mountains or sea-shore resorts was an effectual remedy in the cases he had seen.

Dr. Brush, of Philadelphia, Pennsylvania, did

not believe in the pollen theory. He had himself suffered from hay asthma at different times in the summer, from July until autumn.

Dr. Hurd believed in the neurotic origin of hay fever until the present season, which he said had been an unusually hard season for sufferers from nervous troubles. As a matter of fact, hay-fever invalids had had little or no discomfort. He believed ragweed to have a potent effect in causing hay fever, and stated that in Michigan this year ragweed had not flourished, and the result is seen in the little discomfort from hay asthma.

Dr. Andrews, the president, believed we could point to no one cause for hay fever. Different causes effected different people. He would ask Dr. Bishop for his views on the treatment of hay fever.

Dr. Bishop stated that people of a particularly nervous temperament were the greatest sufferers from hay fever, just as they were often great sufferers from peculiar troubles of nervous origin. He had heard a patient declare that eating strawberries would throw her into convulsions. Hay fever is most prevalent, he said, during the most depressing season of the year. He could not believe in the pollen theory.

As to the treatment, he would say that it was more palliative than curative in the majority of cases. One physician of his acquaintance had procured benefit in forty-five cases by the application of the galvano-cautery to the septum nasi. He had obtained either partial or complete relief.

As to his own practice, he had found the use of a combination of sulphate of morphia and atropia, in the proportion of $\frac{1}{16}$ th of a grain of atropia to one-half grain of sulphate of morphia, to have a most beneficial effect. Not that he would give one-half grain of morphia to patients at once. He had made this combination of morphia and atropia into small tablets, and gave them in the proportion of one-eighth of a grain of morphia to a proportionate amount of atropia.

In his experience, if a patient would take one or two of these tablets immediately upon feeling the first symptoms of hay fever, it would usually abort the attack. He had always given as large a dose of morphia as he thought the system of the patient could stand, in order to make an impression at once upon it. He had also found taking cool drinks or ice-cream immediately before going to bed to be of great assistance in warding off nocturnal attacks.

If a patient keep himself cool throughout the day, too, there is less danger of his being attacked. Quinine deadens sensibility, and is of use, but will not always avert an attack.

The next paper was by Dr. Elliott, of New Haven, Connecticut, on

THE TREATMENT OF NEURALGIA,

by the general practitioner.

Dr. Crego did not like to hear that Dr. Elliott prescribed so much morphia in the treatment of neuralgia. It is the duty of physicians to use as little morphia as possible. Arsenic and iron should be prescribed, and electricity be used as often as practicable.

Dr. Duquet thought well of the hypodermic injections of chloroform in sciatica. He had found injections of twenty drops very deeply into the muscles, just at the beginning of an attack, of great value. He did not share in Dr. Crego's sweeping denunciation of morphia.

Dr. Heber Ellis thought highly of hydrochlorate of ammonia, which he said had been used with success in Germany, and which he had himself found valuable. He could not so highly recommend quinine. He had seen cases of chronic deafness result from its constant use.

Dr. Gristrom, of Sweden, had found massage of great value in the treatment of neuralgia.

Professor D. R. Brower, of Chicago, Illinois, discouraged the indiscriminate use of morphia and quinine. He had seen too many morphia *habitués*, whose habit had commenced in this way, not to feel like protesting against its too frequent use. One may obtain a great amount of *relief* for instantly relieving the patient, but do him, in many cases, far more harm than good.

Dr. Clark, of Toronto, Canada, said he took good care when prescribing morphia, in all cases, to conceal from the patient the fact that he was giving him morphia. Many times when prescribing it internally he gave it with some medicines of such nauseating bitterness that the patient was rarely inclined to ask for its like again. He believed that the treatment of neuralgia should depend upon the causes of the disease.

Dr. Andrews, the president, recommended the use of cod-liver oil in the treatment of chronic neuralgia. In an emulsion by adding phosphates, iron, arsenic, and other tonics, it was excellent. The use of the hot water bag, too, was very useful.

Dr. Russell read a paper entitled

BORDERLAND OF INSANITY,

endeavoring to show that epilepsy and kindred diseases did not necessarily produce mental weakness. He instanced Julius Cæsar, Napoleon, Martin Luther, Cowper, and others.

Dr. Gundry said we had no exact facts of any kind as to the nervous troubles from which Cæsar, Napoleon, and others, were said to suffer.

Dr. Porter hoped the suggestions of Dr. Russell's paper would be followed. In too many cases were the obvious signs of insanity not heeded, and oftentimes a patient is permitted to remain at home, passing without treatment into a case of chronic insanity.

Dr. Ellis, of London, England, thought that the course pursued in the past, both in England and America, in the commitment of patients to asylums, was not such as to induce the friends of a patient to place him in an asylum unless in many cases absolutely compelled to do so. Happily, in England a new plan had been adopted. A medical man receives one or two patients into his house and these patients are seen regularly by the commissioners and receive proper inspection. They secure the benefit of change of air, of environment, of diet, and are at all times under careful personal observation by the physician.

When a patient is cured he retires quietly to his home, and does not retain with him the unpleasant recollection that he has been committed to an asylum—a humiliating thought under the best of circumstances. The great objection to this plan was the expense involved to the patient.

Dr. Fisher read the next paper, written by Dr. Edward Cowles, entitled

NURSING REFORM,

which detailed the success which he has had at the McLean Asylum in training his nurses, and of the improved *esprit de corps* among the attendants and patients.

AFTERNOON SESSION.

Dr. W. W. Godding presented a paper entitled
INSANITY AS A DEFENSE FOR CRIME.

He denied that the test of a knowledge of right and wrong was a correct one to apply in determining the criminal responsibility of lunatics. Judges in the United States have made but a metaphysical study of insanity. They should obtain clinical knowledge of cases by visiting a hospital for the insane, and thus get rid of the idea that lunatics act reasonably in regard to their acts.

He believes that the New Hampshire ruling as to insanity, which Judge Cox on the Guiteau trial rejected as heresy—namely, that all questions on insanity were facts for the jury to determine, and not as rulings for the court—would one day prevail.

Dr. Savage then opened the discussion upon
SYPHILIS ASSOCIATED WITH GENERAL PARALYSIS. General paralysis is not a definite disease, but a degeneration. Syphilis seems to have a distinct and special tendency to cause degeneration of the nervous structure. There is a difference in statistics as to the numerical relations between

syphilis and general paralysis. He believed that very many general paralytics had had syphilis, and that more general paralysis was due to syphilis.

He could not distinguish between general paralysis due to inherited weakness and that due to syphilis and that from any other cause. General paralysis associated with syphilis might begin in the brain or cord. Acute general paralysis might suddenly develop in cases of chronic syphilis. Dr. Savage gave a very interesting case of this form, in a man in whom syphilis had not manifested itself for several years, and in whom general paralysis had suddenly developed and gone on to a fatal termination in very brief time.

General paralysis with syphilis may run an ordinary course in every way, having no special cranial-nerve or other complication. In some of these cases the patients have a wan aspect, with capillary congestion about the face. There are very many cases in which the following history is given—viz., that there has been a cranial-nerve lesion which has improved under specific treatment, and later, symptoms of progressive degeneration have set in.

The nerve-lesion may be motor or sensory. He had had cases of ptosis followed by general paralysis, and of giddiness followed by general paralysis.

In cases of general paralysis associated with syphilis, some are spinal, and of these some are ataxic; others have degeneration in the lateral columns, with spastic symptoms. There may be eye troubles with either. The course which cases of general paralysis with syphilitic histories run differs in some particulars from others; it appears to be more subject to remission, and even to apparent cure.

The Section next listened to an address by Professor Mendel on

MORAL INSANITY.

He maintained that the term should be stricken from the nomenclature of mental diseases. Mental imbecility or paranoia, or something more tangible, should be adopted.

Dr. Savage said there were certain terms which we were at times obliged to use provisionally, and this was one of them. There were people with moral scars who did not deserve the term paranoia nor imbecile, unless we extend the term unduly. Of course I agree with Professor Mendel that we must be careful not to use in courts of law terms that we cannot define, but I still believe we shall have to use the term moral insanity.

Dr. Hughes did not question the existence of

moral insanity, as described by Pritchard. He would substitute for the term moral insanity, because of the difficulty encountered in explaining its meaning in courts of law—"a state of imbecility associated with congenital mental defect."

The discussion upon the relation of syphilis to general paralysis was then resumed.

Professor Mendel's views were presented in German.

Dr. Mickle had often seen cases due to syphilis present the same symptoms as the ordinary every-day case of general paralysis. Other groups were those presenting at first local motor symptoms, local motor paralysis, or sensory symptoms, as well as nocturnal headache. There are local unilateral spasms, followed by paralysis. These paralyses clear up sometimes, but their more usual course is to gradually take on a complete hemiplegia. Such patients often present local symptoms late in the course of affection, such as ocular paralysis. Then when one comes to the necropsy, there is in this class of cases a pachymeningitis—a local one—affecting the dura on one side. Thickening if found on one side, and there is adherence of the meninges to the surface of the convolutions and erosion of the convolutions, which is so common in general paralysis.

There is often a somewhat diffuse yet circumscribed sclerosis affecting a greater or less tract of the cortex of the brain. That I have frequently found existing upon one side chiefly, or upon one side only. There is another group of cases of brain-syphilis and general paralysis. The affection often simulates its demented form. The patient has probably epileptiform convulsions, a local paralysis, more or less marked, and sometimes a monoplegia. Such patients often die in epileptiform seizures, and in an epileptic status. At the necropsy one finds the cerebral blood-vessels, particularly those of the circle of Willis, with their coats enormously thickened. Then they exhibit sometimes growths that are really syphilomatous, really a gumma of the arterial coat. At such times there is a diminution of the lumen of the vessels. This explains the degeneration which ensues in these cases.

In consequence of syphilitic arteritis, affecting the walls of the large blood-vessels, and in consequence of the syphiloma affecting their coats, and the thickening of the walls, there is an obstruction of the walls and a tendency to thrombosis, and as a result we get local softenings, and these give symptoms of ordinary paralysis. In these cases there are gummatous infiltrations affecting other than arterial walls.

Dr. Down said that in his experience in Lon-

don hospitals he had come to the conclusion that nearly all cases of locomotor ataxy were of syphilitic character, that they all responded to specific treatment, and that they are, as a rule, syphilitic. He had had an opportunity of studying the question whether there was any connection between locomotor ataxy and general paralysis of the insane. He cited the case of a chaplain in a Welsh prison who had come under his observation suffering from locomotor ataxy of a progressive character. There was nothing else indicating trouble, but this man, after ten years, had some exaltation of mind which rapidly increased, and he soon became a general paralytic and died in about eighteen months after the first attack.

Dr. Yellowlees said one often sees cases of general paralysis in which there was constitutional syphilis running an ordinary course. He thought one should be careful as to stating the effect of syphilis in the history of the disease. He agreed emphatically with what Drs. Savage and Down had said about the probable syphilitic origin of those cases which begin with spinal symptoms, but we seem to have as a result in cases of general paralysis occurring in patients with a history of constitutional syphilis that the disease is modified to a greater or less extent by a greater tendency to local paralysis than in ordinary cases.

Dr. Nichols said in the large number of cases of general paralysis which he had treated some two-thirds, he thought, had had syphilis. He had really doubted whether syphilis was an essential cause of general paralysis of the insane. It seemed to him that those cases which he had not been able to trace to a syphilitic origin ran their course more regularly than those in which he could, and he had never been able to benefit a patient who had not had syphilis by any anti-syphilitic treatment, and he had retarded the progress of the case in many instances in which he knew that the patient had had syphilis. It had appeared to him that in some way the degeneration of the brain did take on a syphilitic character, although it was accompanied undoubtedly by gross lesions that were common to other forms of brain-degeneration. He might add that he had supposed that excessive venery, excessive intellectual labor, and loss of sleep, were the most efficient causes of general paralysis of the insane, and it seemed to him that they would cause it independently of syphilis.

Dr. Spitzka was obliged to differ very materially from the conclusions of the distinguished superintendent of the Bethlehem Asylum in some particulars. It was a new suggestion to

him that all cases of general paralysis of the insane where spinal troubles, such as locomotor ataxy, precede the mental disturbance are syphilitic in their origin. One constantly growing evil seen in all large capitals was the habit of imperfect coitus indulged in for the prevention of conception. This has a most deleterious effect upon the spinal apparatus. Another was the vicious habit indulged in by those who are losing sexual power. These certainly were causes of locomotor ataxy. Dr. Spitzka thought that, notwithstanding the objections made yesterday and to-day, that we were justified in adopting the term syphilitic dementia. We are shown, in insane hospitals, cases of alcoholic dementia and cases of puerperal insanity.

Now, can you tell the characteristic symptoms of puerperal insanity? It is known in the peculiar combination of symptoms as a whole. Syphilitic dementia differs from ordinary paralytic dementia, or paretic dementia. He had seen hæmorrhages in brains, but not from those places in which they were usually found in cases of status epilepticus. Wendel in his monograph has pointed out many of the peculiarities by which we are able to differentiate cases of syphilitic dementia from ordinary cases of general paralysis of the insane, that there are changes found in ordinary cases of general paralysis that are not seen in cases of syphilitic dementia. Dr. Spitzka then enumerated several differences which he found in post-mortems between these two classes of cases. In the matter of nomenclature, he said, we often strain at a gnat and swallow a camel. He could not see why this distinctive term should not be adopted. He believed wine, women, and worry the most potent factors in causing general paresis.

Dr. Hughes asked if any one present had made post-mortem examination of general paralytics who had died during remissions of the disease, particularly in cases where the patient had suffered from his first attack of insanity, and had died during the first remission?

Dr. Brush said he had seen just such a case—a patient who had died of phthisis during the first remission of the disease. The lesions usually found in general paralysis of the insane were found in this case. Dr. Brush was not sure but that the phthisis had acted in this case in bringing about the remission in much the same way as in the case mentioned by Dr. Savage, where the carbuncle had developed between his patient's shoulders.

Dr. Hurd believed we had all seen cases of general paralysis of unmistakable syphilitic origin. He would ask Dr. Savage, if he believed

any benefit would ensue in these cases from anti-syphilitic treatment?

Dr. Savage in reply cited the case of a patient who had suffered from paresis of a syphilitic origin, and who, after being put upon anti-syphilitic treatment, enjoyed a remission after a fortnight. He believed this a fair specimen of the results to be found in these cases. Certainly if these cases are not cured it seems to be the consensus of opinion that they are relieved. He believed that we have reached the high tide of syphilitic pathology, and that it was now time to mark a shore line. Dr. Savage did not like to have too definite lines drawn in the nomenclature of paralysis. Since we knew comparatively little of the relationship between syphilitic dementia and syphilitic general paralysis, we had better not be too definite.

SECTION ON DENTAL AND ORAL SURGERY.

FOURTH DAY—MORNING SESSION.

MICROSCOPY.

Professor Frank Abbott, of New York, N. Y., and Dr. R. R. Andrews, of Cambridge, Massachusetts, were in charge of this department. Every facility was afforded the members of this section to acquaint themselves with dental microscopy, both physiological and pathological. Among the ground specimens shown by Professor Abbott were those of carious teeth, congenital pathological enamel, hyperostosis (osteomas) of the roots of teeth, and deposits of secondary dentine. Dr. Andrews exhibited serial slides of the developing teeth, and the development of the dental fibril. About forty negatives from his photomicrograph were especially interesting and valuable.

CLINICS.

About thirty gentlemen gave clinics in filling teeth with gold, pivoting teeth, constructing artificial dentures, and treating (surgically) diseased conditions of the gums.

Dr. C. L. Goddard, of San Francisco, California, read a paper entitled

PAIN IN THE TEMPORO-MAXILLARY JOINT CAUSED BY IRREGULARITY OF THE TEETH.

A patient, thirty years old, experienced pain in temporo-maxillary joint during mastication, which was caused by straining the muscles and ligaments, owing to masticating with the jaw protruded. When the teeth were brought together, as in the act of masticating the incisors alone touched, and the bicuspid and molars were about one-eighth of an inch apart. The treatment employed consisted in spreading the upper teeth and thereby securing a proper articulation. Dr.

E. A. Chisholm, of Tuscaloosa, Alabama, read a paper entitled

THE INFLUENCE OF WEATHER CHANGES ON THE HUMAN ORGANISM.

After carefully noting the influence exerted by temperature, humidity, and electricity, the author concludes that by far the greatest power over human organism is exerted by atmospheric pressure. In support of this theory he submits two arguments. The normal atmospheric weight on man is 14.7 pounds to the square inch at the sea level. The body is sustained by an equal power of resistance, wisely provided. If the pressure be less, the surface of the body will be distended, and the superficial circulation less restrained. This change can be brought about by exposure to great altitude, as well as by natural physical causes, when the circulation will be disturbed just the same. Any undue pressure on a portion of the body may then be felt. May not this disturbance of tension on soft tissues which are fixed to the bony framework of man, or where disease has a seat in periosteal and ligamentous attachments, be liable to greater inflammation? Or when the pulp of a tooth, which in a state of health is inclosed in a bony chamber (which has no expansive liberties, nor needs them as long as health continues), becomes exposed through a small aperture; when the normal atmospheric balance is lowered, the nerve has a tendency to be drawn through the aperture and takes on inflammation, probably followed by congestion and complete devitalization.

A report from the Pennsylvania Hospital, some years ago, on the observation of barometric pressure in surgical operations, shows that in 259 operations the barometer was ascending in 102, descending in 123, and standing in 34. Fifty-four of the whole number were fatal, 11 having been operated on with barometer ascending, 25 when descending, and 8 when standing.

AFTERNOON SESSION.

The Section was honored by a visit from the President of the Congress, Professor N. S. Davis. In introducing him President J. Taft recounted the efforts that had been put forth by Professor Davis to secure recognition to the Dental Section. To him more than to any other man in the medical profession is due the credit for having removed the obstructions in the way of the dental specialty.

Professor Davis replied: Twenty-two years ago I had the pleasure of entertaining the members of the American Dental Association, then assembled at Chicago. On that occasion I ex-

pressed the hope that some day, in the near future, we might meet on equal grounds. My hopes of that day are realized to-day. At the last meeting of the American Medical Association, when the question was brought up to admit dentists holding their degree from a recognized institution, it met with no opposition. The action of that body has forever removed the obstacle which had been in your way, and you are now on an equal footing with your medical brethren. He congratulated the members for the interest they took in the advancement of the healing art, and closed by warning them not to fall into "schools," but to meet everyone on the broad field of science.

Professor E. S. Talbot, of Chicago, Illinois, read a paper on

ETIOLOGY OF IRREGULARITIES OF THE JAWS AND TEETH.

This paper was very exhaustive and thoroughly well prepared. The writer showed throughout an intimate acquaintance with the subject, and the Section was not lacking in appreciation of his efforts.

The paper was discussed by Dr. W. C. Barrett, of Buffalo, New York.

A paper by Dr. J. J. R. Patrick, Belleville, Illinois, on "Irregularities," was read by title; also one by Dr. E. H. Angle, Minneapolis, Minnesota, entitled "Notes on Othodontia, with a New System of Regulation and Retention;" also by Professor L. C. Ingersoll, Keokuk, Iowa, on "Inflammation of the Oral Tissues."

To be Concluded in November Number.

BOOKS, NOTICES AND BOOK REVIEWS.

THE PRINCIPLES OF THEORETICAL CHEMISTRY, WITH SPECIAL REFERENCE TO THE CONSTITUTION OF CHEMICAL COMPOUNDS. By IRA REMSEN, Professor of Chemistry in the Johns Hopkins University. Third Edition. Enlarged and thoroughly revised. Pp. xi and 818, duodecimo. PHILADELPHIA: LEA BROTHERS & Co. 1887.

The author has undertaken to give a clear and yet simple explanation of the theory of the constitution of chemical compounds. He admits the impossibility of final knowledge in regard to many of the claimed facts of the science of chemistry, and the probability of future changes in what are now believed to be established facts. The book is admirable in every respect, and is especially worthy of the careful attention of physicians.

THE PRINCIPLES OF ANTISEPTIC METHODS APPLIED TO OBSTETRIC PRACTICE. By DR. PAUL BAR. Translated by HENRY D. FREY. Pp. vii and 175. PHILADELPHIA: P. BLAKISTON, SON & Co. CHICAGO: W. T. KEENER. 1887.

There is no evidence in this book which shows when it was written, but it is evidently of recent date, and the author's notes, marked by brackets in the text, make it a reliable guide in its special field. It is systematically arranged and the list of authorities upon which it is based is large. It is a practical book but much larger than the subject matter which it contains demands.

DIFFERENTIAL DIAGNOSIS: A MANUAL OF THE COMPARATIVE SEMEIOLOGY OF THE MORE IMPORTANT DISEASES. By F. DE HAVILLAND HALL, M. D. Third enlarged American edition. Edited by FRANK WOODBURY, M. D. Pp. xi and 255. PHILADELPHIA: D. G. BRINTON. 1887.

The additions in this edition are principally in the chapter on diseases of the nervous system. In its present form the book will not only retain its many old friends, but it is certain to gain many new ones. It is a most excellent and useful book.

VASO-RENAL CHANGE VERSUS BRIGHT'S DISEASE. By J. MILNER FOTHERGILL, M. D., EDIN. Pp. xii and 219. NEW YORK: G. P. PUTNAM'S SONS. 1887. CHICAGO: W. T. KEENER.

This volume will be a welcome addition to the list of the author's works, to all those who like his writings, either because of or despite, their peculiar literary style, or because of their suggestiveness and practical value. He deprecates his own unfitness for the task, which his title implies, and says that he has attempted it because it ought to be performed by someone, and there seems to be no other volunteer. He claims that the high vascular tension characteristic of the class of diseases under discussion is due to irritation caused by the presence of uric acid on the blood, and that all the subsequent tissue changes are accounted for by this high tension. The author is more of a medical philosopher than a scientific investigator, and admits that most of his pathological histology and experimental physiology is derived from the work of others, but the development of his thesis is in his own peculiar and discursive style. The text is very fully illustrated with lithographic plates drawn from actual microscopical preparations, and this part of the work has been done with an accuracy, skill and care which leave nothing to be desired in the drawings as they appear in the book. The printing and binding are also admirable.

E. W.

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VAGINAL HYSTERECTOMY.

THE ACTUAL STATUS OF THE OPERATION AND REPORT OF FOUR CASES.

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IN the short space of eight years, since 1879, when Czerny, Billroth, Schröder and Mikulicz revived vaginal hysterectomy, a large number of operations, probably nearly 500, have been performed, and a considerable amount of literature on this subject has been brought forth. In spite of adverse criticism, and the apparent gravity of the operation, it has had a more thorough and general trial than could have been expected in so short a time, and for an operation attended by the uncertainty as to results which pertains to all operations for malignant tumors.

Modern surgery, with its allowance of more radical and wider lines for the operations for the removal of sarcomas and carcinomas, has generally procured a larger percentage of definite cures for these tumors in all parts of the body. Although a percentage of between ten and twenty permanent cures seems small, yet it holds out a distinct ray of hope as compared with inevitable death

on the side of non-interference—a ray strong enough to cause operations of this kind to be kept up, even if the immediate risk to life is considerable. This immediate mortality, however, must be within certain limits to permit of the general adoption of an operation. Freund's abdominal hysterectomy, with its mortality of seventy per centum, was too grave even for malignant tumors. Vaginal hysterectomy, with an initial mortality of about thirty per centum, was not so grave as to prevent the general adoption of the operation. But even this mortality has been one of the main arguments advanced from the beginning against the practicability of the operation. It is therefore an important question to ask: Has vaginal hysterectomy become less dangerous since its revival by Czerny in 1879?

The mortality from the operation for the first five years, up to 1884, has been stated by Mundé to be twenty-eight per centum. In a paper read be-

fore the American Gynæcological Association in 1884, he tabulated all the cases to be found in the literature both in Europe and the United States. The number of operations was two hundred and fifty-five, with seventy-two deaths. For the operations of 1885, recorded in Virchow's *Jahresbericht* 1886, the mortality is already much lower. I find reports from thirty-two operators of one hundred and six cases, with seventeen deaths, or sixteen per centum. R. Martin reports, in his work of 1887, sixty-six cases with eleven deaths, or sixteen per centum. Special reports from individual operators in the past year show even more favorable results. Thus we find reported by Klotz seventeen cases, with no deaths, and by T. Gaillard Thomas fifteen cases, with no deaths. Most valuable, however, from the large number of cases, are the recent reports of Fritsch and Leopold. Fritsch reports sixty cases, with seven deaths, or eleven and two-thirds per centum, and Leopold forty-eight cases, with three deaths, or six and one-quarter per centum. The reports from the last operators include all their operations from 1883 to 1887. Leopold's mortality of six and one-quarter per centum is the lowest on record for a large number of cases.

In the beginning of his work in this line, every operator has undoubtedly operated in cases which were too far advanced for reasonable hope of eradication of the disease. The more recent the origin of the tumor, and, consequently, the more limited the extent of the growth, the better are the immediate, as well as the remote, prospects for the patient. If, then, in future, the cases for operation are properly selected, we may expect that the mortality will reach a reasonably low figure. I think we must agree with Fritsch in his statement that he has "no doubt that in the near future the mortality in general will come down to three or four per centum."

It certainly seems remarkable and

far surpassing all expectations that, in less than ten years after the re-introduction of this operation in surgery, its mortality should have come down to almost the same point as that from laparotomy for ovarian tumors. Ovariectomy required a much longer series of years to attain the point of safety which it has now gained. Vaginal hysterectomy for carcinoma may now be said to be not more dangerous than the extirpation of a carcinomatous mamma, with removal of the axillary glands, for which operation Billroth in 1880 gave a mortality of ten per centum, a percentage still further reduced, as shown by Schmidt, from Küster's service in the Augusta Hospital in Berlin, to five and two-tenths per centum.

The partial operation of low or high vaginal amputation of the cervix has been urged as a substitute for vaginal hysterectomy in all cases of carcinoma of the vaginal portion, and the more limited cases of carcinoma of the cervix. The former operation is said to be much less dangerous than the latter. We must then ask the question: Are partial operations on the carcinomatous uterus, provided they permit of the effective removal of the tumor, preferable, as being much less dangerous than the operation of total extirpation?

Pawlick reports a large series of galvano-caustic operations from Braun's clinic in Vienna; one hundred and thirty-seven cases, with ten deaths—that is, seven and one-third per centum. In twelve of the cases of recovery late hæmorrhages of a severe character were observed. Schröder reports one hundred and thirty-six amputations of the vaginal portion and cervix, with ten deaths from sepsis—that is, seven and two-fifths per centum. Wallace reports ten cases with two deaths, or twenty per centum. Gusserow has had thirty-three cases, with three deaths, or nine per centum.

We may thus conclude that if the mortality of total hysterectomy is in the neighborhood of ten per centum the

operation is not much more dangerous than the partial vaginal operation, and agree with Schatz, who wrote in 1883: "The danger of the high vaginal amputation does not seem to be much smaller than that of the total extirpation."

A much larger field than hitherto will undoubtedly be accorded in future to vaginal hysterectomy. It is in many cases almost impossible to determine, during the operation, how far up into the wall of the uterus the carcinomatous tissue extends. Even with a mortality of twenty-five per centum from total extirpation, Gusserow, in doubtful cases, prefers this to the partial operations. In this connection he states: "The safer the total extirpation becomes, the more will it take the place of amputation of the cervix."

The experience in a very complicated case of Binswanger is of importance in our choice of operation. He found a perfectly isolated portio-carcinoma, accompanied by an also isolated carcinomatous degeneration of the mucous membrane of the fundus. It is generally accepted as a law in surgery of the mammary gland that, however localized, a small carcinomatous nodule may be, nothing less than the removal of the entire gland,—and I think it safe to add, the lymphatics of the axilla,—would be the safe operative procedure to adopt. It can thus be understood that authors who believe in a low mortality for vaginal hysterectomy, as Sänger, Leopold, Fritsch, require this operation to be done in all cases of limited carcinomas, even small carcinomas of the vaginal portion, to the exclusion of any of the partial operations. Fritsch calls attention to the fact that a strict line of demarkation, between carcinoma of the cervix and of the vaginal portion, as described by Ruge and Veit in their classical article on "Uterine Carcinomas," does not exist in all cases. Some apparent portio-carcinomas extend deeply up into the cervix. It is often impossible, during a partial operation, to determine

whether we operate in healthy tissue or not; consequently, in the majority of such cases, total extirpation is safer as a radical cure of the carcinoma than partial operation.

Indications.—It is important to determine in a given case whether a carcinoma can be operated upon with success, or if it should be let alone. Cancerous invasion of any of the tissues surrounding the uterus is a contra-indication for an operation. Especially important is the mobility of the organ. Impaired mobility usually means invasion of the broad ligaments, and to this class belong most of the cases in which the operation has had either to be abandoned or has been exceedingly difficult and dangerous, and been followed by speedy relapse in loco. If the uterus is not fairly movable, the technical difficulties of the extirpation are well-nigh insurmountable. At the same time we must be aware of the possibility of meeting with commencing carcinoma in a uterus immobilized by independent parametritic exudates. If in such a case we are able to make a diagnosis, there is the possibility of enucleating the uterus from the connective tissue masses in which it is imbedded, without opening the peritoneal cavity,—the so-called extra peritoneal vaginal hysterectomy. This operation was performed years ago by Czerny, and it has been lately recommended by Frank. As the cases up to this time are so few, and the descriptions of them so incomplete, further experience is needed.

Recently, vaginal hysterectomy has been resorted to in other diseases of the uterus than malignant tumors. Besides a not inconsiderable number of operations for prolapse of the uterus, Leopold has made the extirpation for severe neurosis; Bernays, Frank and others for retroflexion, and Frank in several cases of chronic granulating adenomatous endometritis, when complicated by hæmorrhage or parametritis. As yet the last named as indications for

the operation do not seem to be generally accepted.

The *operation* itself, as far as the details of the procedure are concerned, is remarkably unsettled, and it is difficult to find two surgeons who operate exactly in the same manner. The principal object to be attained in the choice of operation is security against hæmorrhage and sepsis of the abdominal cavity as well as of the vaginal wound. The more recent changes in the operation in this direction have undoubtedly contributed to lessen its immediate mortality.

The same preparatory measures are generally adopted as for laparotomy, with a view of having the alimentary canal empty. Thorough disinfection of the vagina is, in the case of an ulcerating carcinoma, rather difficult, and opinions are divided whether the removal of the fetid carcinoma-tissue, with the sharp spoon, should take place a day or two before the operation (Hegar), or whether it can be postponed so as to be the first step in the operation. (Leopold & Fritsch.) It seems most convenient to do all the operating at once, when, as has been demonstrated by the two last named operators, sufficient immediate disinfection can be had during the operation.

The lithotomy position is the one almost exclusively chosen as the most convenient. Only a few, such as A. P. Dudley, of New York, prefer to operate in Sims' position. Mundé tried this position, but gave it up as inconvenient. It would seem that blood and irrigation-fluid would be more likely to enter the abdominal cavity, in Sims' position, on account of the difference in pressure in the vagina and abdominal cavity, characteristic of the latter position.

It will be necessary to divide a narrow vagina posteriorly, to make room for the operation. Simon's specula, or retractors of different sizes, or Fritsch's speculum with an apparatus for constant irrigation may be used.

It does not matter whether the uterus is drawn down into the vulva with a strong loop of silk or the forceps, provided the cervical tissue has consistency enough to give a good hold. Mikulicz's loop of silk through the lower part of the parametria does not help materially in bringing the uterus down, although it may assist in making the division of the lateral attachments bloodless. Fritsch lays great stress on commencing the operation by detaching the parametria from the sides of the cervix, which he accomplishes in the following manner: He divides the parametria after successive ligatures *en masse* of portions of the tissue, each one deeper than the preceding one, until after three to five such ligatures the lower border of the lateral ligament is reached. Hæmorrhage from the uterine artery or its branches is thus prevented almost entirely, and the uterus becomes loose, and can very easily be brought down into the vulva so as to give greater facility to the succeeding steps in the operation.

In the detachment of the bladder and rectum from the cervix, Martin and Hegar try to avoid hæmorrhage from the vagino-peritoneal wound surface by a row of sutures, including successively one portion after another of the tissues to be divided. This procedure takes a good deal of time, some of which may, however, be saved by not having to ligate bleeding points after the division, hæmorrhage from which, although not copious, may sometimes prove very troublesome.

The opening of the peritoneal cavity, before and behind the uterus, should always be preceded by a renewed, thorough disinfection of the entire field of operation. Right here arises the question of keeping septic material out of the peritoneal cavity. If all hæmorrhage is stopped by the above mentioned precautions, sepsis could only arise from contact between the peritoneum and the carcinomatous cervix and uterine canal. Fritsch recommends that the posterior

fornix be left in connection with the uterus until the very last—that is, until after the detachment of the bladder and the ligature of the broad ligaments. A disinfected sponge is passed up between the uterus and the bladder and placed above and behind the fundus. To the sponge should be attached a loop of silk or silver wire (Leopold), as difficulty has sometimes been experienced in finding and removing a loose sponge from the pelvis. Fritsch draws down the fundus of the uterus through the anterior cul-de-sac while he ligates the broad ligaments, thus leaving the carcinomatous cervix in the posterior fornix, which has not yet been opened, and avoids contact with the peritoneum by making the division of the posterior fornix the last step in the detachment of the uterus.

Leopold opens into Douglas' fossa before ligating the broad ligament, but he never turns—that is, ante- or retro-vertes the uterus. During the ligation of the ligaments the uterus is left in place, so that the carcinomatous cervix remains down in the vagina during the entire operation.

I have some doubt whether it is convenient or even possible in all cases to keep the uterus in situ during the ligation of the broad ligament. In my first case, in which the fundus was small, it was natural and easy. In the second case, in which the uterus was larger, I found it more easy to antevert. Thus Fritsch's advice in this direction appears more applicable to cases in general.

Ligature of the broad ligaments is one of the most important steps in hysterectomy, inasmuch as the large vessels, uterine and spermatic, must be ligated with entire safety so as to avoid fatal hæmorrhage. Fear of not thus securing the vessels from bleeding has brought forth a great variety of methods to attain this end.

The use of the galvano and thermocautery, to insure security against hæmorrhage from the broad ligaments,

has been occasionally tried by Anderson and Simpson, and speedily abandoned as unsafe; Simpson's patient died from secondary hæmorrhage.

Ligature EN MASSE has been used by Billroth, Wölfler, Mikulicz, Schröder and Thiersch. The dangers of the ligature *en masse*, from its liability to slip, compelled Billroth to compress the ligament with strong forceps before applying the ligature. Schröder added several separate ligatures. Ohlshausen used a Cintrat's wire constrictor, and, later, elastic ligature.

Ligature in portions.—Czerny had already ligatured in three portions, and many operators followed this method.

Homostatic forceps left in place for 24-36 hours. Pean.

Partial ligature, step by step, is probably the safest, and now the most commonly adopted method. It is hardly necessary, as Hofmeyer proposed, to divide the ligament between successive double ligatures, as there is very little hæmorrhage from the uterine ends of the vessels. Thus the single step ligatures, as proposed by Sänger, and now used by Martin, Von Teuffel, Fritsch, Leopold, and many others, is at present regarded as the safest method of procedure.

The treatment of the peritoneal and vaginal wound is of paramount importance, inasmuch as thereupon depends the prevention of septic inflammation in the peritoneal cavity, as well as in the tissues within the pelvis. Great diversity of opinion still prevails as to the best method to be adopted.

Schatz procures drainage by keeping the patient in a sitting position during the after-treatment—a method altogether inconvenient for the patient.

Schröder has left both wounds open; united the broad ligaments with the lateral corner of the vaginal wound, and placed a T shaped drainage-tube in Douglas' fossa.

Ohlshausen uses a drain in Douglas' fossa and iodoform-gauze in the vagina.

Martin uses a T shaped drain in

Douglas' fossa. Bottini, Simpson, Thiersch, Leopold, and Fritsch use iodoform-gauze drain from Douglas' fossa down into the vagina.

The peritoneal wound has been partially united and an opening into the peritoneal cavity left for drainage, either in the center or at each corner of the wound (Czerny). The peritoneal wound has been left open and the vaginal wound partly united (Sänger); iodoform, gauze in the vagina, the peritoneal wound united and the vaginal wound left open (Billroth, Wolfier, Mikulicz, Kaltenbach, Von Teuffel).

The peritoneal wound has been united and the vaginal wound partly closed (Tauffer). Regarding this, Tauffer makes the following remarks: "I am convinced the total or partial leaving open of the vagino-peritoneal wound represents a stage in the development of vaginal hysterectomy which will soon be passed by, and that the total closure of the wound by suture will be generally adopted."

In the most cases of vaginal hysterectomy no wound-surfaces are left in the peritoneal cavity, and consequently there seems to be nothing to drain. When the ligatures in the broad ligaments are brought out into the vagina and kept there by sutures, there seems to be less reason to drain after vaginal hysterectomy than after uncomplicated cases of ovariectomy or oöphorectomy. In one of my cases (Case I.) total closure of the wound was followed by a perfectly aseptic course of after-treatment.

Shall the ovaries and tubes be removed, or can they be left?—In the majority of vaginal hysterectomies, as yet on record, the ovaries and tubes have been left, and yet complaints of sufferings from periodical disturbances in these organs are of very rare occurrence. Schröder and Tauffer report one case each, in which pain afterward might be referred to the ovary. Schröder's patient had pain at the time of her menstrual period, but there was never any hæmorrhage. Tauffer's

patient had pain in an ovary, supposed to be included in the cicatrix.

Fritsch advises that the ovaries and the tubes be removed when the patient is young, and the organs can be brought down in the wound with reasonable ease. Leopold gives similar advice. Brennecke is of the opinion that the ovaries and tubes can always be left without any disadvantage to the patient. The ovaries, left in, seem in a short time to become atrophic and cease to have any physiological activity. He saw, quite commonly, especially in younger patients, more or less vague menstrual molimina in the first two to six months after the operation, but after that time they disappeared entirely. There would thus seem to be no reason to complicate hysterectomy, which in itself is a sufficiently long operation, by removal of the uterine appendages, except in cases where these are found to be diseased.

The *mishaps* of the operation seem to become more and more rare, because the advanced cases are not operated upon, and because the requirement that the uterus shall be freely movable is more strictly adhered to. Thus the difficulties in separating the uterus from its surroundings are the more easily overcome.

Opening into the bladder still not unfrequently occurs, even in the hands of the most skillful operators (Czerny, Ohlshausen, Fritsch, Martin, Hofmeyr and others). The opening, however, has usually no more serious consequences than the existence of a temporary vesico-vaginal fistula, which generally closes spontaneously, in a few weeks.

Injury to the ureter.—It was a common occurrence in the abdominal hysterectomy of Freund that one or both ureters were either divided or ligated. In the vaginal hysterectomy, injury to the ureter is just as rare as injury to the bladder is common. Starck, in 1882, had to remove a piece of the ureter, because it was involved in carci-

nomatous tissue. Boeckel, in 1884, had an injury to the ureter, probably from its being included in a hæmostatic forceps, which, according to Pean's method of operating, was left in permanently. In both cases subsequent nephrectomy was resorted to successfully. In early operations with a movable uterus, there is in the modern method of operating little or no danger of injuring the ureter during vaginal hysterectomy.

Permanent recovery, after vaginal hysterectomy for carcinoma, depends, as in all other removals of malignant tumors, partly on the anatomical characteristics of the latter, and partly upon early operation. The reports from the literature in this regard are imperfect, because the operation is new and the reports recent, and a number of patients have been lost sight of or their later condition has never been reported.

If we consider freedom from relapse, two years after the operation, as a permanent recovery,—a view that is generally adopted,—it is almost astonishing to see a percentage of permanent recovery amounting to 39.2 per centum, as published by Mundé in a select series of cases, which included only cases of early operation, eighty-two in all, with thirty-two permanent recoveries. Still more favorable are the reports published by Leopold, which give more than two-thirds, or sixty-nine per centum of radical cures.

We are certainly not accustomed, from other fields of surgery, to expect so beneficial results from operations for malignant tumors. Is this because carcinomas of the uterus, in most cases, belong to the benignant variety, or is it that the uterus, being a comparatively well isolated organ, gives favorable chances for operating in healthy tissue, by keeping the tumor localized for a certain length of time?

Should further reports coincide with the foregoing statistics, it seems evident that vaginal hysterectomy, for carcinoma, gives better chances for the

patient than operations for carcinoma in any other part of the body.

Case I. Mrs. E. C. M., 28 years of age, married, residing in Chicago, came to my office on June 10, 1887. Her mother died of cancer of the stomach. The patient commenced to menstruate at the age of 15, and was always regular until the time of her marriage, in October, 1886. After that time the menses became somewhat irregular, and shortly afterward some leucorrhœa appeared. The discharge gradually increased, and, in the spring of 1887, became of a somewhat fetid odor, which caused her to apply for treatment. In January, 1887, the menstrual flow was excessive, and in February she was examined by Dr. S. D. Jacobson, of this city, who kindly informed me of the local condition of the patient. He found on the posterior side of the vaginal portion of the uterus a flat erosion, half an inch long and a quarter of an inch broad, surrounded by five or six small nodules looking like ovula Nabothi. In narcosis the erosion was scraped off with the sharp spoon, and the bleeding surface cauterized with a mixture of equal parts of chloride of zinc and alcohol. For two months it looked as if the loss of substance would heal up, but in May, a small, cauliflower-like excrescence appeared upon the surface.

On examination, I found the following condition: The patient is pale, but not emaciated. She seems to be in good health, except for the discharge from the vagina. Examination per vaginam shows the right half of the vaginal portion of the uterus to be the seat of a hard nodular mass. Extirpation of the carcinoma was agreed upon, the method of operating being left undecided. If vaginal amputation of the cervix proved to be insufficient for the removal of all the diseased tissue, then total extirpation of the uterus would have to be resorted to.

On June 14, the patient entered Emergency Hospital. She was prepared for

the operation in the usual way, by being kept on liquid diet for several days, by thorough disinfection of the vagina by antiseptic injections, and by shaving of the external genitals.

On June 17, I operated, in the presence of Drs. Jacobson, Hall, Senior and Junior, Engert, Otto and Holmboe, in the following manner: The patient was placed in lithotomy position, and the vagina held open by Simon's specula. The narrowness of the vagina necessitated bilateral incisions in its posterior walls. The healthy part of the vaginal portion was seized with heavy vulsellum forceps, and the uterus drawn down toward the vulva. A loop of heavy silk was passed through a fold of the lateral fornix, through the lower part of the broad ligament, an inch outside of and above the vaginal portion, and knotted, with a view of securing the uterine vessels, and as a help to the further drawing down of the uterus. A circular incision was now made half an inch outside of the carcinoma and the vaginal portion. The parametrium or lower part of the broad ligament was divided without much hæmorrhage, each bleeding vessel was secured by forceps, and ligated with catgut. The uterus could now be brought down into the introitus. The carcinomatous tissue was scraped off from the ulcerated surface with a sharp spoon, leaving a cavity in the right posterior half of the cervix extending upward close to the internal os.

It was therefore thought advisable to remove the uterus in toto. Thorough disinfection of the cancerous cavity and the vagina was now made with 1:1000 corrosive sublimate solution. The dissection between the uterus and bladder was very easily made with blunt instruments, and finally the peritoneum was divided in the vesico-uterine fossa. From this opening, a flat aseptic sponge was passed up in the small pelvis, and a loop of heavy silk was passed through the lower part of the body of the uterus, to furnish a better hold on the

latter than the vulsellum forceps could give. Dissection between the cervix and rectum was next made with blunt instruments, and the peritoneum divided. The remainder of the left broad ligament was secured by hooking the left index finger around it, and transfixed by a double silk ligature. It was then divided between this and the uterus without turning the body of the latter down into the vagina.

All visible divided vessels were now ligated with catgut, the right broad ligament was treated as the left had been, without difficulty, and the uterus was removed. The aseptic sponge originally inserted was now replaced by a larger one, which kept the omentum and small intestines out of sight. The cut ends of the broad ligament were drawn down into the vagina, and united by sutures to the lateral wall of the cervix. As the ovaries and tubes did not come down easily into the vaginal wound, it was decided to leave them in. Sutures were now passed antero-posteriorly through the vaginal wall of the anterior cervix, the posterior flaps of the peritoneum, and finally out through the posterior vaginal wall into the vagina. Six such sutures were, for the time being, left long, and secured by hæmostatic forceps. Before knotting these sutures, the flat sponge was removed from the pelvis, and the toilet of the pelvic abdominal cavity made by smaller sponges held by long artery forceps, until they came out dry and bloodless. Finally, the pelvis was iodoformized by means of a sponge dusted over with iodoform. The wound-surfaces between the vagina and peritoneum were then thoroughly cleansed with 1:4000 corrosive sublimate solution, and iodoformized. The vaginal sutures were now knotted, thus closing hermetically at the same time the peritoneal cavity and the vaginal wound. The ends of all sutures and ligatures were cut off an inch and a half from the knot. The vagina was irrigated with 1:1000 corrosive subli-

mate solution; dusted over with iodoform; and a light pad of iodoform-gauze was left in the vagina. The posterior incisions in the introitus of the vagina were united with sutures and covered with iodoform-gauze dressing.

The operation lasted two hours, at the end of which time the pulse was 90, and strong. There were no signs of collapse whatever. The course of the after-treatment was perfectly aseptic. There was no rise in temperature nor pulse, and no pain. For the first few days there was a little soreness in the region of the wound. After slight vomiting from the ether, the patient's appetite improved rapidly, and the first passage from the bowels, on the sixth day, was entirely painless. She sat up at the beginning of the third week, and the ligatures of the left broad ligament were loosened, and removed on the twentieth day. On the right broad ligament they still remained attached to the mortified peripheral end of the ligament, which was not detached until a week later. On the patient's discharge from the hospital, July 13, the transverse linear wound was completely closed.

Case II. Mrs. M. McE., aged thirty, was admitted to Emergency Hospital, June 14, 1887, and came under my care. She gives the following history: Parents living, no hereditary disease in the family. She was married in 1878, and has five children. Menstruation commenced at the age of fourteen, and was at times irregular until she reached the age of twenty, when it became normal. In the spring of 1883 she had an attack of pneumonia, and was then told by her attending physician that her uterus was out of place. For this she has at times been treated, ever since.

Early in 1886 she was informed by her physician that there was an ulceration at the neck of the uterus. A bad-smelling discharge commenced at about the same time. Until the beginning of 1887 she had no pain. In the summer of 1886 she became pregnant, and was

delivered of a female child March 23, 1887.

She has had a cystic goitre the size of a fist for many years, which has never caused her any serious difficulty. For the last four years she has been in poor health, suffering from repeated attacks of bronchitis, and has gradually become emaciated.

Present Condition.—The patient is pale, considerably emaciated. A fluctuating tumor the size of a child's head takes up the anterior aspect of the neck from the hyoid bone to the sternum. It is tense and somewhat tender, as a result of puncture and aspiration undertaken in a hospital in the city, about a week before. The tumor is apparently superficially fluctuating. The tenderness is most pronounced around the seat of the puncture. Examination of the thoracic organs shows nothing abnormal. She has some cough, especially on rising, and raises a moderate amount of muco-purulent matter.

There is a discharge from the vagina of considerable quantity and fetid odor. Digital examination shows that the vaginal portion is transformed into an irregular, hard, nodulated mass, in the center of which the finger passes into a large irregular cavity, extending through the entire neck. The uterus is movable; the rectum and bladder do not appear to be infiltrated. There is no appreciable thickening in the broad ligaments. Pulse 110, and rather weak; temperature is normal; there is shortness of breath after exercise.

After the usual antiseptic preparations, I operated on June 30, 1887, in the presence of Drs. Jacobson, Rosa Engert, Otto, Hall, Sr., and Jr., Guerin Holmboe, and Simons. The vagina had to be enlarged posteriorly; the uterus was drawn down with vulsellum forceps, and the same method of procedure pursued as in the previous case. The separation of the neck of the bladder from the uterus was difficult, because the carcinoma had extended into close proximity to the wall of the bladder,

some of the muscular tissue of which was removed—so much so, in fact, that a sound in the bladder was covered by mucous membrane only. The neck was amputated at the internal os, because in this instance it proved more convenient to evert the body of the uterus through the opening in Douglas' fossa. The peritoneal wound was closed by a row of sutures, but the vaginal wounds in the lacunæ were left open in the middle for iodoform-gauze drainage. There was only slight hæmorrhage during the operation, which lasted more than two hours. Toward the end of the operation the patient was very much collapsed, cold and almost pulseless. In spite of the free use of hypodermic injections of brandy from the end of the operation at 2 P. M. until 8 P. M., no reaction had taken place; the pulse of the wrist was 160 and hardly perceptible, and the patient was a little delirious; temperature 96° F. I then made a transfusion in the median vein of the arm of twelve ounces of a 1/1000 solution of salt, in sterilized water. The pulse improved somewhat after the transfusion.

June 21, 8 A. M. The patient was uneasy all night. She slept very little if any; pulse very feeble and can hardly be counted; complains of extreme thirst, has not vomited. 8 P. M. Condition unchanged. June 26. The patient's condition has gradually improved a little. She coughs considerably, and expectorates muco-purulent matter. Complains of frequent and painful micturition. Examination of the urine reveals cystitis, probably caused by a non-disinfected catheter used by one of the nurses. The bladder was washed out twice a day with a saturated solution of boracic acid. June 30. There is some bloody discharge from the vagina. July 15. Patient has been steadily improving; cystitis and cough less; she sits up, is out of bed, and eats and sleeps well.

July 20. Patient complains of considerable pain in the goitre, with some

difficulty in breathing—so much so that aspiration was deemed necessary and a pint of greenish fluid evacuated, containing numerous, cholesterine crystals, pus-cells and blood-corpuscles. August 1. Sutures and ligatures were removed from the vagina, and the fornix presents a healthy granulating surface, an inch and a half broad and three quarters of an inch in antero-posterior diameter. The patient left for her home.

Case III. Mrs. C.—H—, of Chicago, 32 years of age, married, was admitted to Emergency Hospital on August 21, 1887, and came under my care. She gives the following history: She did not commence to menstruate until the age of 19; menstruation was always scanty, but not painful; she was married at the age of 21, and has one child, 11 years of age. Three years ago her husband deserted her. Nine months ago she went under a "specialist's" treatment for "ulceration of the womb." She did not at this time, however, suffer from any subjective symptoms referable to the genital organs. She has never had pain (slight occasional abdominal pains excepted) or hæmorrhage until shortly before her admission to the hospital. She noticed that, from the middle of last winter to this time, she has gradually lost in weight. She does not appear cachectic.

Present Condition.—Patient is somewhat pale, but reasonably well nourished. Heart and lungs are normal. Urine in quantity, and, on chemical and microscopic examination, normal. There is a bloody, serous fetid discharge from the vagina. Vaginal examination reveals an irregular, hard, nodulated mass, occupying the right half of the vaginal portion of the uterus. The granulated surface is about an inch in diameter, and shows a peripheral area of grayish-red, rough, granulated appearance, surrounding a central area of a light, yellowish-gray color. Above the tumor the neck feels normal, except posteriorly and to the right, where it

is harder than usual. The uterus is movable; no thickening or hardening of the parametria. The ovaries are of normal size; the body of the uterus somewhat enlarged; the cavity three inches deep.

Diagnosis.—Carcinoma of the vaginal portion, with probable slight extension up into the neck. It was decided to perform total extirpation according to the method of Fritsch and Leopold.

On August 25, in the presence of Drs. Picard, Bernauer, Engert, Hall, Otto and Holmboe, I operated according to the method of Fritsch. The patient had been prepared for the operation in the usual way. The vagina, being very narrow, had to be divided posteriorly. Even after this had been done, the space was so small as to make the operation very difficult. The granulating surface of the carcinoma was removed by a sharp spoon, and the surface then cauterized with the ten per centum chloride of zinc solution. The cervical canal, being now fully exposed, was, together with the uterine canal, disinfected by means of cotton dipped in corrosive sublimate solution and iodoform. A ligature was passed through the parametria, the uterus drawn down with vulsellum forceps; the left parametrium incised to the extent of an inch, half an inch outside of the vaginal portion. The tissue of the left parametrium was now ligated in portions, and then divided between the ligature and the uterus. Four or five such ligatures were applied before the movable portion of the broad ligament could be reached by the index finger. The ligatures were left long, and the bleeding points and visible vessels between the ligatures ligated separately. The right parametrium was now dealt with in exactly the same manner. This part of the operation was almost bloodless. These steps in the operation had the effect of making the uterus come down more than an inch, so as to permit the vaginal portion to be well outside of the vulva. Notwithstanding this, the

detachment of the bladder from the uterus was exceedingly difficult. A curved steel sound in the bladder marked its outlines clearly, and the anterior fornix was incised. An attempt to separate the bladder from the uterus with the finger and dissecting forceps proved utterly futile. Every particle of tissue had to be divided with scissors. An attempt to further the separation by most careful use of closed dissecting forceps resulted in making an opening into the bladder a quarter of an inch wide. This opening was immediately united by a continuous catgut suture, taking in only the muscular coat, and finally knotted in such a way as to draw the opening together like a tobacco pouch.

Finally, after having been obliged to leave in situ a thin layer of uterine tissue on the wall of the bladder, the peritoneum was reached and the vesico-uterine fossa opened transversely on each side out to the broad ligaments. A good-sized flat sponge was passed up over and behind the body of the uterus, with a silk loop attached to it. Several vessels and bleeding points had to be secured on the vesical side of the wound. The left index finger was passed up behind the left broad ligament, and the latter ligated in three portions, and cut off from the uterus. The right broad ligament having been treated in the same manner, the uterus was now attached, posteriorly, only to the tissues between the posterior fornix and Douglas' fossa. This bridge of tissue was divided by scissors and secured by a loop. In endeavoring to remove the uterus there was found a number of long, band-like adhesions between the posterior surface of the uterus and the peritoneum in Douglas' fossa. Separation of these adhesions was followed by very troublesome, although not copious, hæmorrhage, a number of bleeding points having to be secured and ligated separately. The ovaries and tubes were left, as they were almost immovably fixed to the

sides of the pelvis, but were otherwise of normal appearance. On the removal of the sponge from the pelvis, a mass of omentum and a loop of the small intestine came down into the vagina, and were pushed back by another disinfected sponge. The ends of the broad ligaments were secured in the corners of the vaginal wound in the usual manner, and the peritoneal flaps united carefully after cleaning the pelvis with sponges dusted over with iodoform. The center of the vaginal wound was left open on account of the bladder having been penetrated. The vagina was thoroughly disinfected, and, together with the vaginal wound, packed loosely with iodoform-gauze.

The after-treatment was entirely aseptic, and the patient was discharged from the hospital.

Case IV. Mrs. J. M., age 39, married, was admitted to Emergency Hospital September 6, 1887. The patient resides in Wisconsin. Her family history is good. With the exception of two attacks of typhoid fever in childhood, she has always had good health. Menstruation commenced at the age of 13, and has always been regular, but it was always accompanied by severe moulmima. She was married at the age of nineteen, and has had four children, born respectively one year, three years, six years, and nine years after marriage. The last pregnancy terminated in a premature birth, the child living only a couple of hours.

The patient's health was always good until the time of her last pregnancy, eleven years ago. Since then she has had a white discharge from the vagina, and has been treated for "falling of the womb." She has never had pain. The first symptom to attract attention was the fact that the discharges became offensive, and of a darker color. This was first noticed in the spring of 1887. In other respects all went on as usual until July, 1887, when the patient had a severe hæmorrhage after her regular

period. The hæmorrhages became more and more frequent, occurring almost every day.

Present condition.—Patient is fat, but well proportioned, weighing about 180 pounds. She is pale, but not cachectic. Her general health good; in fact, she would not have sought medical advice had it not been for the hæmorrhages, which alarmed her.

Vaginal examination reveals a nodulated, hard, ulcerating mass occupying the right half of the cervix. The uterus is movable. Right broad ligament rather tense, but not infiltrated. Rectum, vagina and bladder free.

Diagnosis.—Carcinoma of the uterus. Treatment: Vaginal hysterectomy.

After the usual preparatory treatment the operation was performed, September 12th. The patient was anesthetized with ether and placed in lithotomy position. The introitus of the vagina was so narrow, from overabundant adipose tissue, that it was necessary to make a perineal incision on both sides. The carcinomatous mass was now scraped out with a sharp spoon, and the vagina thoroughly disinfected. The uterus was seized with heavy vulsellum forceps, and drawn down as far as possible. The broad ligaments were so short and unyielding that it was impossible to draw the uterus as far down as in the previous cases, making the operation very difficult throughout.

Bilateral incisions were made; the parametria ligated in portions, as usual, and the uterus removed, which was found to be unusually large. On account of the narrowness of the vagina, and the unyielding condition of the parts, the usual method of suturing and closing the wound was abandoned.

This course was the more indicated, as during the operation the patient's pulse was very rapid, and toward the end she showed signs of collapse. A rubber drain, surrounded by iodoform-gauze, was introduced, and ordinary antiseptic dressing applied.

At the end of the operation the patient was very weak, radial pulse scarcely perceptible, necessitating the free use of hypodermic injections of brandy and ether.

The after-treatment consisted of daily irrigation with boracic acid, fresh packing of iodoform-gauze, and free use of stimulants.

Four days after the operation the rubber drain was removed; but it was necessary to introduce it again two days later, as the discharge became highly offensive. It was kept in for two days, after which iodoform-gauze only was used.

From the beginning of the third week after the operation, the temperature and pulse became normal, and remained so, excepting one afternoon (October 6th), when she was allowed to sit up half an hour, after which her temperature went up to 102° F. She was kept in bed for several days, not being allowed to sit up again until October 13th. Since that time her recovery has been uninterrupted. All ligatures were removed, and the wound entirely closed. Her appetite and general condition are good.

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EDITORIAL.

TWELFTH BIENNIAL MEETING OF THE
ITALIAN MEDICAL ASSOCIATION.

Not very many years ago the majority of the medical students from America who went abroad for advanced professional work or observation, were to be found in Paris. To-day, Vienna is considered by the same class of men as rather the most available place for general work; and it will generally be readily conceded that Germany and Austria together, present more and stronger attractions for American medical students in Europe than any other country, as they are of the foremost in the scientific medical investigation of the day. The preponderance of the work of this kind in these two nations has been so great, that some of their neighbors have not received due credit for what they have done and what they are doing. Among these is the king-

dom of Italy. To those of our readers who are aware of the activity of this recently regenerated nation, only as it has shown itself in naval affairs and in Continental diplomacy, will find the account, given in another department of this number of the JOURNAL AND EXAMINER, of the twelfth biennial meeting of the Italian Medical society, both noteworthy and interesting. The letter published will show what good work and how much of it the Italian medical men are now doing. Careful reading of the letter shows, as our correspondent claims, that the Italians are active, energetic and intelligent workers in all branches of medical science; that in this as well as other departments of national life, awakening from their long period of inactivity, they are making rapid strides toward that proud position among the nations of the earth which their country once held.

NINTH INTERNATIONAL MEDICAL CONGRESS.

HELD IN WASHINGTON, D. C., SEPTEMBER 5, 6, 7, 8, 9, AND 10, 1887.

[CONTINUED FROM THE OCTOBER NUMBER.]

GENERAL SESSION.

FIFTH DAY.

The Congress was called to order punctually at 10 A. M., by the President.

Secretary-General, Dr. Hamilton, reported that the committee appointed on the time and place for holding

THE TENTH INTERNATIONAL MEDICAL CONGRESS, had recommended Berlin, Germany, as the place and the year 1890 as the time.

The report was unanimously adopted.

Dr. Hamilton also reported resolutions adopted by the Section in Military and Naval Surgery and Medicine, the purport of which was a recommendation of

UNIFORMITY OF THE REPORTS OF SICK AND WOUNDED IN ALL THE ARMIES OF THE WORLD.

Dr. Hamilton further reported as having been adopted by the Section in Public and International Hygiene, the following preamble and resolution :

Whereas, The whole community has been shocked by the almost daily occurrence of terrible accidents on many of the railroads, causing considerable loss of life, and by the habitual neglect of the most elementary sanitary laws ;

Whereas, As this Section considers itself in a degree the guardian of public health ; be it

Resolved, That the attention of this Ninth International Medical Congress be respectfully called to this most important question, and that it be requested to use its influence to obtain the necessary reforms.

The following were reported from the same section on *Thursday* :

After the reading by Dr. Domingo Freire, of Rio Janeiro, representative in the Congress of the Brazilian Government, of a paper entitled "Vaccination with the Attenuated Culture of the

Microbe of Yellow Fever," with demonstration of the Microbe under the microscope, the following preamble and resolutions were adopted by the section :

Whereas, Inoculation against yellow fever, if it proves successful after further examination, is calculated to benefit the human race throughout the world ; and

Whereas, The facts presented by experiments of Dr. Domingo Freire afford a reasonable assurance of its protective influence in Rio Janeiro ; therefore,

Resolved, That this section recommends the co-operative investigation of the results obtained by yellow fever inoculations as a protective against that disease, and that adequate appropriations by the governments represented in this Congress be made for that purpose.

Resolved, That this action be communicated forthwith for consideration in the general session of the Congress.

The president then called upon Dr. Charles D. C. Phillips, of London, England, to occupy the chair during the delivery of the general address by G. Fielding Blandford, M. D., London, England, on

THE TREATMENT OF RECENT CASES OF INSANITY
IN ASYLUMS AND IN PRIVATE HOUSES.

The inquiry was limited to the treatment of recent insanity only, without reference, to the care and maintenance of the chronic insane. Recent insanity in very many cases is a curable disorder. What mode of treatment, then, will afford the best prospect of recovery? Will the latter take place only under asylum supervision, or is there a fair chance of curing the sufferer in a house taken for the purpose, or the house of a medical man? For the great majority of patients asylum treatment is the only available method, but there is a certain proportion of insane persons whom it is important to treat, if it be possible, outside an

asylum, to save them from the stigma of having been the inmates of one, as this may seriously damage their future prospects and position. Among females some may be of high rank, whose friends shrink from the publicity of certificates and asylum surroundings; some may be young girls at the outset of life; others young mothers whom and whose children it is desirable to save from the reminiscence of an asylum. Among men there are not a few to whom confinement in an asylum will certainly bring a loss of employment tantamount to ruin. And a young man's future career may be marred by the same fact. It is, therefore, of importance to consider what mental disorders are likely to be transitory and capable of being treated in an ordinary house, or slight and free from danger to the patient and those about him, so that he may be able to live in such a house, or move from place to place under the charge of suitable companions.

The most transitory of all mental disorders are attacks of maniacal excitement, varying under undue elation and hilarity to very acute mania. The most frequent cases are those caused by drink varying from ordinary delirium tremens to other forms of insanity seen more especially in women. Very similar forms occur without any history of drink, in persons prone by inheritance to nerve disturbance. They arise after a sudden shock of bad, or even good, news, or great fatigue, or other exhausting cause, and last a few hours, days or weeks, the subsidence being often as rapid as the onset. The prognosis as regards recovery is often easy, the doubt being as to duration, and this will be solved by proper treatment.

Patients who are not actively excited or unduly elated, but depressed and melancholic, must be considered from a different point of view. They are more manageable, at any rate, in the less acute forms, but the disorder is more insidious, and treatment will have to continue for months rather than weeks or days. But many recover without asylum treatment, many without the aid of a specialist. As the commencement of this depression is almost always slow and insidious, treatment outside an asylum is likely to be adopted at first, so that there is an opportunity of considering how far such treatment is answering or or likely to answer. The first objection to be urged against the keeping of a melancholic patient in a private house is the danger of suicide. That an ordinary house with unguarded windows, staircases and fireplaces offers more facilities for suicide than an asylum is certain. But asylums do not afford absolute protection, as our commissioners' reports abundantly testify. Nothing will effectually prevent suicide but the unceasing

vigilance of good attendants, and this, in many cases, can be applied as well out of as in an asylum. One symptom which often necessitates removal to an asylum is obstinate refusal of food. When this is determined, and forcible feeding requires the aid of several assistants, it can hardly be carried out in a private house. Another reason why an asylum may be preferred is, that in an ordinary house or family the intense egotism so characteristic of melancholia is fostered rather than removed by the concentration of the attention of all upon the patient and his delusions. In an asylum, especially a large one, he becomes a unit in the number of those treated, and this of itself is often highly beneficial. There is one more variety of insanity which can often be treated out of an asylum. This is acute primary *dementia*, or *stupor*, as it is sometimes called. These patients, though often very lost and idiotic, are seldom dangerous. With plenty of food, air, and exercise, they will get well in a private house and as they are almost all young persons, it is an advantage that they should escape the asylum reputation.

For the treatment of all patients in private houses one thing is absolutely requisite, viz., funds. Unless proper medical supervision, proper attendants, and proper quarters can be provided and paid for, to an asylum the sufferer should go. Friends are often willing to make a sacrifice, and profess they will pay anything. But this may mean a scanty and poverty stricken supply of what is necessary, the funds become exhausted before recovery takes place, and then an asylum is necessary, and money is wasted which could hardly be spared. Where means are slender and the duration of the illness doubtful, it is better to send the patient to an asylum at once, and save the money for the convalescent stage. Treatment in a patient's own house is rarely successful, therefore the alternatives are an asylum, or a house adapted to the requirements of the case.

At the close of the address, Dr. A. Cordes, of Geneva, Switzerland, moved a vote of thanks to Dr. Blandford for his able and interesting address, which was seconded by Dr. P. H. Kretschmar, of Brooklyn, New York, and then unanimously adopted.

The congress then adjourned to meet at 9:30 A. M., on Saturday.

SECTION ON GENERAL MEDICINE.

FIFTH DAY—MORNING SESSION.

Professor George E. Stubbs, of Philadelphia, Pennsylvania, read a paper entitled

RATIONAL TREATMENT OF DISEASES OF THE RESPIRATORY APPARATUS.

He made an elaborate and somewhat extended review of the subject of phthisis. Dust inhaled into the lungs was a great exciting cause of phthisis. In treating this disease he was partial to counter-irritation with moisture and heat. For this purpose he used flannel wrung out in hot mustard-water, applying this around the chest and putting a dry layer of flannel over it.

Dr. Thomas Hay, of Philadelphia, Pennsylvania, thought counter-irritation invaluable. He paints the whole exterior of the chest with iodine. He gives large doses of whiskey.

Dr. Ege, of Reading, Pennsylvania, read a paper on

A NEW METHOD OF TREATING PHTHISIS.

He does not believe in the cure of phthisis unless it can be demonstrated by the microscope. Whether the bacillus tuberculosis is, in itself, the cause of the phthisis, makes no difference so long as we know it to be the invariable accompaniment of this disease.

To the white of one egg are added six to eight ounces of water; this mixture is put away in a bottle for five or six days, until the mixture has the odor of rotten egg. From one-half to two ounces of this fluid are placed in an atomizer and deeply inhaled during twenty-four hours. Under this treatment the expectoration becomes thinner and of less quantity, the microscopic examination of the sputa shows a less number of the bacilli, and finally none at all. The experiments attempting to prove that the inhalations of the bacterium termo would exterminate the bacillus tuberculosis have proved a failure. While it is impossible to speak definitely upon the *modus operandi* of this solution, Dr. Ege is confident in regard to the favorable clinical results. He suggests also that, among the fifteen or twenty varieties of bacteria contained in the egg solution, there are probably some which have a fatal antagonistic action upon the bacillus of phthisis. He stops the treatment when the sputa no longer contain the bacilli.

Dr. Ege was asked what he thought of the sulphuretted hydrogen treatment, to which he replied that it relieved, but did not cure, phthisis.

Sir James Grant, of Canada, read a paper on

DIPHTHERIA.

Diphtheria is of two varieties—the simple and the malignant. We must look upon this disease as a blood poison. He has used mustard baths at the beginning of the attack, containing one ounce of mustard to an ordinary bath-tub of water, after which the patient is wrapped in blank-

ets and diaphoresis encouraged. He uses light treatment, iron internally and applied to the pharynx. Nourishment should be encouraged.

We must be very careful about letting the patient move about suddenly, on account of the danger of paralysis of the heart. He must be kept long in the reclining position.

As to the malignant type of the disease, he had never seen but one epidemic, and that about twenty years ago. He knew of no remedies for this form of disease.

It was interesting to note that when there is a large snowfall and consequent dryness of the atmosphere, diphtheria is less prevalent, and *vice versa*. Moisture in the atmosphere has a predisposing influence. Cases usually do better inland than at the seashore.

Professor John A. Ochterlony, of Louisville, Kentucky, remarked that he was exceedingly grateful to Sir James, especially for the valuable suggestions of diverting to the surface and eliminating through the perspiration the poison; it was an idea which he had never heard or thought of before.

Professor A. B. Palmer, of Ann Arbor, Michigan, said that he brought the system early under a free perspiration and salivation by means of jaborandi, taking into account, of course, the condition of the heart. He had used counter-irritation, with a similar idea to that of Sir James, in spinal meningitis.

Sir James Grant replied that he had never used jaborandi. Mustard had the advantage of being well known and handy.

SECTION ON GENERAL SURGERY.

FIFTH DAY—MORNING SESSION.

Dr. George Assaky, of Bucharest, Roumania, read a paper on

IODOL IN SURGERY.

The conclusions arrived at were: (1) Wounds unite under iodol by first intention. This union, however, being the result of various and complex conditions attending operation. It is not possible, therefore, to attribute to iodol alone the absence of suppuration and inflammatory conditions. In wounds which gap and suppurate iodol is an excellent antiseptic. It rapidly retards suppuration, renders it inodorous, reduces the necessity for frequent dressing, and hastens considerably cicatrization. In ulcerating or gangrenous wounds iodol aids in resisting the destructive process, and changes the wound, after a variable period of time, to a healthy, granulating condition. This action of iodol is shown, also, in hard chancres. In case of soft chancres

the result is variable. Sometimes it transforms them into a simple wound with brief delay; at others it is insufficient for this purpose, and it becomes necessary to employ in addition, locally, antiseptic lotions.

The same is true with reference to open venereal buboes of the groin. The powdered iodol has this advantage over Iodoform, that it is free from odor and is not toxic in its effects.

(2) Doses of iodol of from 0.40 centigrammes to 2.0 grammes, daily, produce no functional trouble, even if continued a long time.

These doses give marvelous results in tertiary syphilis and in scrofulous affections. In the secondary stage of syphilis, taken internally, it rapidly destroys the syphilitic manifestations. Iodol seems to aid the general nutrition and increase strength and flesh. It is indicated in all cases of specific malnutrition.

Iodol is an antipyretic. In acute infectious diseases, such as erysipelas, etc., it causes a rapid fall of temperature.

Dr. Milton J. Roberts, of New York, N. Y., read a paper on

A NEW METHOD OF OPERATING ON BONE BY MEANS OF THE ELECTRIC OSTEOTOME.

He presented an apparatus for this purpose, of ingenious mechanism.

The osteotome proper consisted of a hollow cylindrical handle, protruding from which was the shaft of the instrument, at the end of which was a small wheel with teeth like an ordinary finger-saw; the base of the handle was connected with the electric batteries by means of the covered wires usually used in electric batteries; anterior to the handle were "cut offs," which could be worked by the forefinger and thumb disconnecting the current in an instant and checking the revolutions of the saw-wheel just as quickly; according to the diameter of the bone, different-sized saws were adjusted. In connection with this was a set of drills for drilling into any part of a diseased bone and removing the sequestrum or dead tissues in the bony cavity, the cavity being illuminated by a small electric light thrust in at different stages of the operation in order to secure removal of all carious bone. The femur was exhibited, the head of which had been drilled in this manner, the drill-opening into the bone being three-eighths of an inch in diameter, while the entire inside portion had been removed by the drill.

The question was raised as to the cost of such an apparatus. It might cost more than the surgeon would care to invest unless making a specialty of such diseases. One gentleman affirmed that he could perform all the work which this

instrument did with the regular dental drill, and that he had done it on several occasions.

Dr. Close, of Illinois, thought the chief advantage of the apparatus was that the operator does not necessarily require skilled assistance, as the current was controlled by the hand in which the instrument was held, while the left hand was at liberty. He had been in the habit of using at times the Band wheel-engine for such purposes, but found it too slow; in order to cut bone the saw must revolve quickly in such an apparatus.

Dr. Roberts, in conclusion, said that he had tried the dental engine many times and found the revolutions too slow, and it was for that reason he had set to work in order to secure the best possible method of removing bone in such cases; when the wheel revolves slowly the bone-tissue is torn; had it been satisfactory, he would not have spent the time and money in bringing forward a new instrument. In operating, the periosteum is not lifted or removed, but cut through with the bone. The speaker also exhibited some instruments for measurement, which would record the exact size of the bone to be removed in cases of deformities, etc.

Dr. George E. Post, of Beirut, Syria, read a paper on

CALCULUS IN SYRIA.

The writer remarked that it would almost seem to be produced from climatic causes, as it was such a prevalent malady there. In Palestine, in almost every village, these cases are numerous both in young and old; in one day four patients came to him from a single village. When an operation is performed, the stone is generally found to be larger than is found in European countries, owing to the fact that the natives are extremely averse to surgical operations, and hence procrastinate. There are not many good surgeons there, and they frequently hesitate to perform an operation for stone; besides, too, the people are ignorant and poor. In that region there is a class of men called "stone-cutters," who make it their business to travel and remove stone from the bladder. They carry a bag containing the stones they have removed, and also those bequeathed to them by their ancestors, if in that calling. Their method of operation is as follows: The patient is laid on his back, without the use of anæsthetics, and held by assistants; the stone-cutter inserts two fingers into the rectum and feels for the stone in the bladder; when felt it is pushed toward the neck of the bladder, and then, with the aid of a razor scalpel, he cuts down upon the stone through the perineum, and, when reached, the stone is pushed out by the fingers in the rectum.

The writer quoted one of his cases, in which five stones were removed, two from the bladder and three from the perineal tissue. Another case was more curious than that; the patient had been operated on in infancy by the method described, and a fistulous opening still existed. In that country they are in the habit of eating grapes with skin, seed and pulp; the fistulous opening connecting the rectum with the urethra had secreted grape-seeds, these forming the nucleus for the stone formation. There were sixty-four stones removed from the fistulous tract and bladder, ranging from the size of a grape-seed to a nut; a portion of one stone was imbedded in the prostate, and with a short neck the larger portion was imbedded in the bladder.

Another case of the same character, but much larger in size, weighing six ounces, in which a portion of the stone was in bladder and prostate, was removed, and not the slightest disturbance of the system ensued, although the stone was of such large size. In another instance the speaker removed a stone weighing twelve ounces; it was four inches long and two inches wide.

The largest number of calculi he had ever removed from one patient was two hundred of various sizes, but eleven of them weighed six ounces each. The patient died from double pneumonia three days after. The speaker stated that he had operated in 250 cases of stone in the bladder. The mortality was 10 in 176 cases. One hundred and six of the cases (250) were in children ten years of age and under. He had performed 44 lithotrities, 8 of which died. One patient, a man seventy years of age, came under the writer's care from whom he removed three stones from the urethra—one from the membranous portion; one, three inches from the meatus; and one from just inside the meatus—the largest was the size of a bean. Going from extreme age comes that of a child, not quite two years of age, from whom the writer had removed a stone the size of a bean.

Dr. J. A. S. Grant (Bey), of Egypt, remarked that calculus is very common there also; a friend of his, Dr. Zacharol, had made careful and scientific examinations of the various calculi, and almost invariably found the nucleus to be the egg of *Bilharzia hæmatobia*, and which, he suggests, would account for the stone.

A patient came to the speaker's office one morning with his scrotum greatly inflamed, and about the size of a child's head. The man—a native—while sitting near the railroad track had been struck on the scrotum by a bottle thrown from the hands of a soldier in a train that was passing; the blow had laid open the scrotum. The

speaker removed the stone, which weighed fourteen ounces. This was the largest he had ever removed, and this was taken away in three pieces.

Dr. R. T. Morris, of New York, asked which species of *Bilharzia* was found, and also in how many cases the blood-worms were found.

Dr. Grant replied that *Bilharzia hæmatobia* was found in almost every case examined by Dr. Zacharol.

Dr. Post remarked that he hardly thought *Bilharzia* could be a cause, as while *Bilharzia* was very rare in Syria, calculi were very common.

Dr. Oscar J. Coscary, of Baltimore, Maryland, read a paper on

AN UNCOMMON CASE OF FRACTURE, WITH DISLOCATION OF THE METATARSUS.

The patient, a male, was run over by a steam-car, the right leg being crushed, compelling amputation, and the left foot cut. The patient died nine hours after the accident. At the autopsy it was found that three of the metatarsal bones were completely luxated, the scaphoid projecting up, presenting the appearance very much of such bone in a case of strong pes equinus, while the posterior portion of the os calcis had been crushed and the astragalus bruised.

Professor N. Senn, of Milwaukee, Wisconsin, read a paper on

ELASTIC CONSTRICTION OF THE NECK, WITH EXCLUSION OF THE TRACHEA, AS A MEANS OF CONTROLLING HÆMORRHAGE IN OPERATIONS ON THE HEAD.

He called attention to the fact that where we desired a bloodless operation there were more blood-vessels than in any other part of the body. He thought, however, this hæmorrhage could be overcome by the following method, which he had practiced on dogs, namely, cutting down on the trachea, separating it from the surrounding tissues, and then passing a strong rubber band behind it, the ends passing backward; the vessels of the neck could be constricted by tightly securing the ends of the rubber band, while respiration could be carried on. One dog, upon which he had operated, retained the bandage for two hours, and is now as well as ever. Another one, where it was retained still longer, had been put under the table, and afterward, when about to be thrown out, it was noticed the heart pulsated, but respiration had ceased. The band was released and artificial respiration practiced, when the animal speedily recovered.

Dr. Carnochan, of New York, N. Y., presented a specimen of

DOUBLE DISLOCATION OF THE HIP-JOINT.

He remarked that previous to 1820 this con-

dition was unknown, but in 1826 Dupuytren first brought it to the notice of the profession. The speaker stated there were various theories as to the causation of this condition, among which were the carelessness of the accoucheur, movement of the fœtus in utero, etc.; the question arises, also, as to whether it is really a dislocation or malformation.

Dr. R. T. Morris, of New York, N. Y., stated that he did not think that it could be caused by careless handling of the physician, as in the northern part of Germany it was quite common, and they certainly had skilled physicians there; he thought it might be due to arrest of development.

Dr. Post drew attention to the two classes of cases, one of which seemed to be rachitic; but he had seen it occur in healthy infants with a difference in length of the limbs. A few weeks since, he saw a case in which the head of the bone was in the thyroid foramen; the speaker could only account for it that the child moved in utero.

Dr. Link, of Indianapolis, Indiana, read a paper on

ALCOHOL AS AN ANÆSTHETIC.

The speaker had used it in over a hundred cases and never had a fatal result, while the anæsthesia was complete. The whiskey to be given in two-ounce doses, every two to five minutes, until a pint to one and a half pints had been taken and the patient became stupefied. Then about two drachms of chloroform were placed in the cone, and a few respirations would put him to sleep; the operation could then be carried out. The speaker's reasons for using this method was that in cases of shock there is depression; the alcohol increases the heart's action, while the chloroform, which is a depressant, administered as stated, secures the equilibrium of the heart's action.

SECTION ON MILITARY AND NAVAL SURGERY AND MEDICINE.

FIFTH DAY—MORNING SESSION.

AMPUTATION FOR INJURY OF LIVING PARTS NEVER NECESSARY.

A paper upon this subject was read by Professor Ellisha H. Gregory, of St. Louis, Missouri. The author mainly described improved methods of coaptating deep structures, and the prevention of wound accidents and complications. He advises that, if by peculiarity of the injury the main channels are cut off, the surgeon should wait for collateral circulation, because the injury is not general.

The second paper was entitled,

THE SUPERIORITY OF THE BAVARIAN PLASTER-OF-PARIS SPLINTS FOR GUN-SHOT AND OTHER FRACTURES OF THE LIMBS,

by James H. Gregory, of Omaha, Nebraska. The author related his experience and observation during four years of service as surgeon during the War of the Rebellion. Instances were given in which the spica-bandage and other appliances had caused gangrene.

The history of the Bavarian plaster-of-Paris splint was briefly given, after which he related his experience in its use, and the proper mode of its application.

This was followed by a paper by Richard Francis Tobin, of Netley, England, entitled, SOME REMARKS UPON THE KIND OF DRESSING MOST AVAILABLE FOR GUN-SHOT FRACTURE OF THE LOWER LIMBS ON THE FIELD IN CONNECTION WITH TRANSPORTATION.

The paper, owing to the absence of its author, was read in abstract by Dr. Jeffrey A. Marston.

It had reference chiefly to fractures of the upper third of the femur, and to the desirability, in treating such cases, of fixing in an immovable position, not only the injured member, but also the opposite limb and the trunk. The appliances that, in the opinion of the writer, best fulfil these indications, were described.

Dr. J. R. Smith, U. S. Army, opened the discussion with the assertion that the permanent immobilization of fractured limbs upon the field of battle is impracticable.

The injured limb should be rendered immobile temporarily by a common splint, and by being fastened to the other limb, if the leg is involved, or to the body, if the arm be the seat of the injury. In the United States army all these modes and materials had been tried, and a large number of surgeons have about concluded that the silicate bandage is the neatest, lightest and strongest dressing for hospital use; the speaker had known patients thus treated to travel from Philadelphia to Maine.

Dr. R. B. Bontecou, of Troy, New York, preferred the silicate of soda or potassa as a primary dressing for fractures of the lower extremities, with a view to transportation; it is cheap, hardens quickly, is lighter than plaster-of-Paris, and can be carried in the field in tin cans of a capacity of one or two litres with a large mouth and screw-cap cover. When used it should be of the density of ordinary syrup.

AFTERNOON SESSION.

The session was opened, and Dr. E. Griswold, of Sharon, Pennsylvania, read a paper entitled, WHAT CONDITIONS ON THE FIELD JUSTIFY AMPUTATIONS IN GUN-SHOT WOUNDS?

The author claimed that amputation on the field of battle cannot always be done, although the established rule of surgery, as well as the opinion of the surgeon, may demand it in many cases in which it is *not done*. The exigencies of war often separate the surgeon from his equipments and deprive him of the means of action, or he may be overworked and unable to do his work.

The surgery of to-day and of the future makes it necessary for military surgeons to be supplied with means by which asepsis can be practised upon the field in the treatment of wounds, and this can be done and made practical, wherever an adequate supply of water is attainable, if a rapid method of filtration and purification is available.

The possibilities of antiseptic surgery are already largely developed, and the military surgeon of the future must know what is to be expected in the way of conservatism, and when his patient, having a severe gun-shot wound in one of his extremities, is found to be clearly beyond the reach of conservatism, he is not only justified in amputating in the field, but it is his duty to do so.

Dr. Bontecon, Troy, New York, said he would practice conservative surgery when there are arteries to nourish the limb and veins to carry the blood back from the injured member to the heart.

Dr. E. A. Wood alluded to other elements, such as shock, which must be taken into consideration in determining whether amputation be or be not required, and in some instances of probable deformity resulting with consequent uselessness of the limb, the part should be excised.

Dr. Collins, of Philadelphia, Pennsylvania, thought many cases that would otherwise recover died of the wear and tear incident to the transportation.

Dr. H. H. Biedler, of Baltimore, Maryland, adverted to certain operations for grave injuries having terminated fatally after amputation, from the operation itself, and without the complication of shock.

Dr. Griswold closed the discussion by saying that he had noticed that shock, in injuries of the knee-joint, seemed to be more serious than in those of the hip joint.

When the injury is such that amputation is clearly indicated, it should be done early; still, even in bad cases, conservative surgery was available, and an attempt should always be made to save the limb.

A paper presented by Dr. Charles Smart, United States army, was, at the request of the author, read by title.

The President announced that the business before the Section was concluded, and with a few appropriate remarks declared the Section adjourned.

SECTION ON OBSTETRICS.

FIFTH DAY—MORNING SESSION.

The committee appointed to formulate resolutions in regard to

UNIFORMITY IN OBSTETRICAL NOMENCLATURE, submitted its report, which, after discussion, was unanimously accepted, the only dissentient voice being that of Martin, of Berlin, who was not present but had left a message stating that he thought the matter should not be settled by the Ninth Congress, but should be deferred for three years and be accepted or not by a congress meeting in the Old World.

REPORT AS ACCEPTED.

A. It is desirable to try to attain uniformity in obstetrical nomenclature.

B. It is possible to arrive at uniformity of expression in regard to: 1, The Pelvic Diameters; 2, The Diameters of the Fœtal Head; 3, The Presentations of the Fœtus; 4, The Positions of the Fœtus; 5, The Stages of Labor; 6, The Factors of Labor.

C. The following definitions and designations are worthy of general adoption by obstetric teachers and authors:

I. PELVIC BRIM DIAMETERS.—1. Antero-posterior: (1) Between the middle of the sacral promontory and the point in the upper border of the symphysis pubis crossed by the *linea terminalis*=*Diameter Conjugata vera*, Cv. (2) Between the middle of the promontory of the sacrum and the lower border of the symphysis pubis=*Diameter Conjugata diagonalis*, Cd.

2. Transverse: Between the most distant points in the right and left ileo-pectineal lines=*Diameter Transversa*, T

3. First Oblique: Between right sacro-iliac synchondrosis and left pectineal eminence=*Diameter Diagonalis Dextra*, D. D.

4. Second Oblique: Between left sacro-iliac synchondrosis and right pectineal eminence=*Diameter Diagonalis Laeva*, D. L.

II. FÆTAL HEAD DIAMETERS.—1. From the tip of the occipital bone to the centre of the lower margin of the chin=*Diameter Occipito-Mentalis*, O. M.

2. From the occipital protuberance to the root of the nose.=*Diameter Occipito-Frontalis*, O. F.

3. From the point of union of the neck and occiput to the centre of the anterior fontanelle=*Diameter sub-Occipito-Bregmatica*, s. O. B.

4. Between the two parietal protuberances=*Diameter Bi-Parietalis*, Bi-T.

5. Between the two lower extremities of the coronal suture=*Diameter Bi-Temporalis*, Bi-T.

III. PRESENTATION OR LIE OF THE FŒTUS.—The *presenting part* is the part that is touched by the finger through the vaginal canal, or which, during labor, is bounded by the girdle of resistance.

The *occiput* is the portion of the head lying behind the posterior fontanelle.

The *sinciput* is the portion of the head lying in front of the *bregma* (or anterior fontanelle).

The *vertex* is the portion of the head lying between the fontanelles and extending latterly to the parietal protuberances.

Three groups of presentations are to be recognized, two of which have the long axis of the fœtus in correspondence with the long axis of the uterus, while in the third the long axis of the fœtus is more oblique or transverse to the uterine axis.

1. Longitudinal: (1) Cephalic, including—vertex and its modifications; face and its modifications; (2) pelvic, including—breech; feet.

2. Transverse or trunk, including shoulder, or arm and other rarer presentations.

IV. POSITIONS OF THE FŒTUS.—The positions of the fœtus are best named topographically, according as the denominator looks—first to the left or the right side, and second, anteriorly or posteriorly. When initial letters are employed it is desirable to use the initials of the Latin words.

In the case of vertex positions we have:

Left Occipito-Anterior=*Occipito-Læva-Anterior*, O. L. A.

Left Occipito-Posterior=*Occipito-Læva-Posterior*, O. L. P.

Right Occipito - Posterior = *Occipito - Dextra-Posterior*, O. D. P.

Right Occipito-Anterior=*Occipito-Dextra-Anterior*, O. D. A.

The Face positions are:

Right Mento-Posterior = *Mento-Dextra-Posterior*, M. D. P.

Right Mento-Anterior = *Mento - Dextra-Anterior*, M. D. A.

Left Mento-Anterior = *Mento - Læva-Anterior*, M. L. A.

Left Mento-Posterior=*Mento-Læva-Posterior*, M. L. P.

The Pelvic positions are:

Left Sacro-Anterior=*Sacro-Læva-Anterior*, S. L. A.

Left Sacro-Posterior = *Sacro-Læva-Posterior*, S. L. P.

Right Sacro-Posterior = *Sacro - Dextra-Posterior*, S. D. P.

Right Sacro-Anterior=*Sacro-Dextra-Anterior*, S. D. A.

The Shoulder presentations are:

Left (left and right side of the mother) Scapula-Anterior=*Scapula-Læva-Anterior*, Sc. L. A.

Left Scapula-Posterior=*Scapula-Læva-Posterior*, Sc. L. P.

Right Scapula-Posterior=*Scapula-Dextra-Posterior*, Sc. D. P.

Right Scapula-Anterior=*Scapula-Dextra-Anterior*, Sc. D. A.

V. THE STAGES OF LABOR.—Labor is divisible into three stages: (1) First stage—from the commencement of regular pains till the complete dilatation of the os externum=*Stage of Effacement and Dilatation*. (2) Second stage—from dilatation of os externum till complete extrusion of child=*Stage of Expulsion*. (3) Third stage—from expulsion of child to complete extrusion of placenta and membranes=*Stage of the After-birth*.

VI. THE FACTORS OF LABOR ARE—(1) The Powers. (2) The Passages. (3) The Passengers.

(Signed) DeLASKIE MILLER, M. D.,

President of the Section.

A. F. A. KING, M. D.

WILLIAM T. LUSK, M. D.

A. R. SIMPSON, M. D.

Dr. R. S. Stringer, of Florida, presented a paper on

A RATIONAL METHOD OF RELIEVING ASPHYXIA NEONATORUM,

which, in the absence of the author, was read by title.

Dr. Ira E. Oatman, of San Francisco, California, read a paper on the

TREATMENT OF PUERPERAL ECLAMPSIA.

After giving a sketch of the disease and the usual methods of treatment, he recommended: When the convulsions occurred before labor, anæsthesia and clearance of bowels and rectum, together with as rapid delivery as was compatible with the safety of the patient. When the convulsions occurred after delivery and were accompanied by high nervous and vascular tension, nothing was so safe, speedy and reliable as *veratrum viride*. This he gave in the dose of m.vj. by mouth, or m.x. by rectum, and repeated it every fifteen minutes until the convulsions ceased.

Should the *veratrum* cause excessive depression an immediate and certain antidote was found in alcohol. It was better to give the *veratrum* in excessive doses than to risk the continu-

ance of the convulsions; for the brandy or whisky to counteract its effects was always present, and the veratrum certainly exhibited a remedial action not otherwise attainable. The puerperal period was to be treated as usual, together with treatment of any pathological condition present. He found the veratrum equally efficient in the convulsions of children and in hystero-epilepsy.

Professor Alexander R. Simpson, of Edinburgh, Scotland, thought any suggestion that would enable us to control eclampsia of extreme value. He would like to hear opinions regarding veratrum; he had used it once, twenty years ago, and had not felt inclined to try it again.

Dr. G. Lane Taneyhill, of Baltimore, Maryland, advocated strongly the use of veratria in eclampsia, and said that fifty per centum of his cases had, in the last twenty years, been treated by it. He gave ten drops of the tincture hypodermatically every hour of convulsive action, and always kept another hypodermic syringe ready, filled with brandy to sustain the heart should the pulse go below forty-two. He was led to this practice by observing its use by Lattimer in a case which he could control but temporarily by chloroform. He had not lost one case of eclampsia since using veratria; it enabled him to hold the engine, the heart, in check as an engineer with the air-brake, and was not as dangerous a medicine as was generally supposed. It produced the same effect as bleeding, save that no blood was lost to weaken the patient afterward.

Dr. Duncan C. MacCallum, of Montreal, Canada, had fourteen cases; all recovered. He used chloral, chloroform, potassium bromide, bleeding, morphia hypodermically; cleaned out the bowels by stimulating enemata. There was no routine treatment; each case was to be treated on its own merits.

Dr. Pierce, of Ohio, thought it unwise to try to map out any one line of treatment for eclampsia; each case must be rationally treated.

Dr. Lawrence, of Bristol, England, believed in as early delivery as possible, and the use of chloral. In plethora, bleeding was sometimes useful. It was difficult to lay down definite treatment.

Dr. G. W. Jones, of Danville, Illinois, said that veratrum is an active purgative, and a loaded colon is an active agent in causing epileptiform convulsions. He took charge of his patients beforehand, kept their bowels regular, used chloroform in labor when any nervous symptoms appeared, and saw no cases of eclampsia.

Professor A. F. A. King, of Washington, D. C., had never used veratria in eclampsia, but had suggested its use twenty years ago theoretically (*New York Medical Journal*, October, 1865), to lessen arterial hyperæmia of the nerve-centres, by reducing the force of the heart. He then, and more recently (in the *American Journal of Obstetrics*, March and April, 1887), considered, and still considers, eclampsia to be caused chiefly (and in addition to uræmic poisoning) by abnormal pressure of the gravid womb upon the aorta and its branches and vena cava and its branches. He believes this abnormal pressure to be chiefly due to the premature descent of the lower uterine segment and foetal head *below the brim into the pelvic cavity*, especially in primiparæ two or three months before full term.

In transverse presentations, whether in multiparæ or primiparæ, eclampsia does not occur. The head of the child ought not to sink below the pelvic brim before labor—in fact, such *descent* is the *second* stage in the mechanism of labor. Yet recent authorities affirm that it is usual, and therefore normal, in primiparæ. This he denies. He maintains that the normal posture of the fetus during pregnancy, before labor begins, is transverse or oblique; a head presentation is abnormal until the sinking of the womb just before delivery, when it changes in order that labor may take place. To remove the cause of and prevent eclampsia, we should, by posture and manipulation, lift the prematurely descended head out of the pelvis, and put it above the brim in one of the iliac fossæ, where it normally belongs, and where it would have remained but for corsets, dress, coitus and other displacing influences.

Professor W. W. Jaggard, of Chicago, Illinois, said: 1. Eclampsia is a symptom of renal insufficiency, renal inadequacy, to use a term of Sir Andrew Clarke's, the result of functional or organic disease. The arguments of Professor A. F. A. King were entirely inconclusive. 2. The cause of the convulsions, cerebral anæmia, the result of vaso-motor spasm, caused by irritation of the vaso-motor centre, by excrementitious matter retained in the blood. 3. Indication for treatment, absolute, continued narcosis. Chloroform, potassium bromide, chloral, morphia. Veratrum viride, according to researches of Wood and Behrens, of Philadelphia, causes vaso-motor dilatation, and the woman is literally "bled into her own veins." At the same time, when this remedy is employed a hypodermic syringe filled with brandy must be ready. Pilocarpin is unreliable, causing cardiac depression, and aiding in

cedema pulmonum when no diaphoretic action is effected. Professor Fordyce Barker has frequently called attention to this fact.

Dr. Oatman said that he had seen doses of as much as a drachm of the fluid extract of veratrum taken by mistake, and recovery, without treatment, had occurred.

AFTERNOON SESSION.

Dr. H. O. Marcy, of Boston, Massachusetts, read a paper on the

HISTOLOGY AND PATHOLOGY OF REPRODUCTION. The studies offered were based upon the conviction that the profession owes to the late Professor Ercolani, of Bologna, the establishment of new and simple truths which are fundamental and of the first importance. Comparative studies teach that there is a unity of type in placental development. The writer endeavored to show that immediately after conception a destructive process affects the inner surface of the uterus; in some of the lower animals and in women this process is limited to the epithelium, while in other animals, as in the rodents, the destruction extends to the entire sub-mucous connective-tissue layer.

This destruction is essential, since it facilitates the setting up of neo-formative changes, from which will result the maternal portion of the placenta. This process consists in the formation of new vessels, which are distinguished from the vessels of the unimpregnated uterus in that both the artery and vein consist of only a simple endothelial wall, and that from the external surface of this is elaborated a layer of special cells not separable from the wall of the vessel. These are the so-called decidual or placental cells.

The relation established between those two factors of new formation is what is known as placental development. The manner in which this relation is established gives rise to the different forms of the mammalian placenta.

Professor Alexander R. Simpson, of Edinburgh, Scotland, spoke of the value of the paper and sketched the development of the placenta from the lowest type, where the foetal and maternal surfaces were simply laid together, and were separated at parturition, to the complicated interdigitation in the higher animals, and the highest type as found in the female, where, at the time of delivery, the maternal as well as foetal portions came away together, leaving beneath it only the basal portion of the uterine mucous membrane.

Dr. E. Paul Sale, of Aberdeen, Mississippi, read a paper on the

MANAGEMENT OF PREGNANCY, WITH REFERENCE TO THE PREVENTION OF POST-PARTUM HEMORRHAGE,

in which he strongly insisted upon the value of prophylaxis, undertaken months before delivery, during which time the patient should be under the supervision of the accoucheur. Some of the predisposing causes and their treatment are as follows:

1. Hæmophilia, abnormal tenuity of the walls of the capillaries. As treatment, use stimulating oils, such as turpentine or ol. origanum. Matico, liquid extract, is also good. Ergot and allied drugs have no value.

2. Anæmia, from various causes. For this use fluid extract stylothansia, cimicifuga racemosa, salix nigra, etc. Faradization of the abdominal muscles for ten minutes daily, is beneficial.

3. Atonic debility from rapid child-bearing. Exercise, tonics, quinine, strychnia, iron, fresh air, constitute the best remedy.

4. Laceration of cervix, cancer, fibroma. This is to be let alone, except before the third month.

5. Intemperance. Moral measures (what success?).

6. Heart disease. In this gelsemium is often useful.

7. Plethora. Dietetics and salines are best.

Dr. H. B. Hemenway, of Kalamazoo, Michigan, had not been able to diagnose post-partum hemorrhage many months before labor. He asked, what was the relation of late ligation of the cord to post-partum hemorrhage?

He strongly suspected that it tended to prevent such an occurrence, and his explanation was as follows: There is no direct connection between the maternal blood-vessels and the placenta; if the cord is ligated late, or if only the foetal portion was ligated, blood flows from the placenta. The cord is normally attached near the center of the placenta; if, then, blood is extracted, the placenta must shrink and the edge will first become detached. If blood is not extracted from the placenta, it is more rigid, and as the uterus contracts the center is likely to be first detached. A sac is thus formed which fills with the maternal blood, and the mouths of the uterine vessels do not firmly close. When the placenta is delivered this accumulated blood rushes out and the maternal vessels again bleed.

Professor W. W. Jaggard, of Chicago, Illinois, called attention to the following propositions:

1. Late ligation of the cord is always indicated in the interest of the child—when not con-

tra-indicated in the concrete case. The researches of Budin have demonstrated that when the cord is ligatured when it ceases to pulsate the child receives seventy-five grammes of blood—lost, when the pulsating cord is tied. The relation of late ligature of the cord to the prevention of post-partum hemorrhage, to which the gentleman from Michigan has called attention, is of great interest, if it be a fact.

2. The best preventive of post-partum hemorrhage is to secure retraction of the uterus, by keeping the hand on the fundus uteri from the moment the child begins to pass through the vulvar outlet until the muscular fibres have rearranged themselves—about one hour after expulsion of the placenta.

Kucher, in his admirable book, has called attention to friction over the fundus twice daily during the first two days of the puerperium. This is the practice in Vienna. There is little danger of dislodgement of a clot in the uterine sinuses, or interruption of the process of puerperal thrombosis, by this procedure. It is also an excellent prophylactic against resorption of septic matter.

Dr. George Wheeler Jones, of Danville, Illinois, read a paper on

DISTOCIA FROM RIGIDITY OF THE CERVIX AND ITS MANAGEMENT.

After a consideration of the various conditions which might cause rigidity of the cervix, he spoke of the most important—spasmodic contraction. Here opium was most valuable, together with chloroform and Barnes' dilators, if quick dilation was necessary. Sitz baths, warm vaginal douches, delivery in a warm room, morphia hypodermically, quinine where there was malaria, salicine in rheumatic cases, and electricity were all useful. He would never use chloral, as it was dangerous to mother and child. He then detailed some original investigations into the medicinal action of *Gossypii radix*, *delphinium*, and *ipecacuanha*.

Professor A. F. A. King, of Washington, D. C., called attention to the fact that the thinning of the uterine segment and the obliteration of the cervical canal, conditions which led to the rigidity of the cervix, were abnormalities. When the uterus and child maintained during pregnancy their normal lateral obliquity, the canal of the cervix from the external to the internal so will remain unobliterated until full term, which is the normal condition both for primiparæ and multiparæ. Under the same normal circumstances the great thinning of the lower uterine segment, the tearing of the decidual mucous membrane, the "formation of a new cervical

canal," and the other tissue-changes observed by Brandl will be absent *during pregnancy*. They are abnormal. They may, nevertheless, occur *during labor* from *abnormal* mechanical obstruction to delivery. Professor King also objected to the use of chloral.

Dr. Brooks H. Wells, of New York, N. Y., did not agree with Dr. Jones concerning the great danger to the unborn child from the use of chloral. In about one hundred cases out of between six and seven hundred which he had had under his charge, or had witnessed, it had been used both as an anæsthetic, where the first stage had been unusually painful, and in spasmodic rigidity of the cervix, and in no case had he seen any harm accrue to mother or child, but only the most gratifying results. He always used the precautionary measure mentioned by Dr. Jaggard, viz., to keep himself informed of the condition of the uterus by a hand placed over the fundus, slight rotary friction overcoming any possible tendency to relaxation, and had never had any serious post-partum bleeding, either with or without the use of chloral. Its administration might, in full doses, blunt the pains somewhat. He was accustomed to administer the drug in ten to fifteen grain doses, by mouth or rectum, until this result was attained—usually from two to four doses. He considered morphia and hot douche important agents in treating the class of cases mentioned.

A paper by Dr. John H. Wilson, of Chicago, Illinois, entitled "Puerperal Uræmic Amaurosis," was read by title.

The Section then adjourned.

SECTION ON GYNÆCOLOGY.

FIFTH DAY—MORNING SESSION.

Dr. Henry O. Marcy, the President of the Section read a paper on

THE HISTOLOGY AND SURGICAL TREATMENT OF UTERINE MYOMA.

The author presented an interesting array of microphotographs. He showed the multilocular growth; the capsule; the multilobular growth and the parts at which they lie in juxtaposition; the histological relation of the growth to the uterus; the vascularization; the first injection they were able to make into a fibroid tumor; and discussed the bacilli discovered by Dr. Nelson, of Boston, of which he termed bacillus Nelsoni. He showed a number of other cuts, and the specimen of a tumor which he had removed from a woman per vaginam, but which he would not attempt again, on account of its size; he exhibited some instruments for the operation of

removal of fibroid tumors, of his invention, and discussed the shoemaker's stitch.

Illustrations were thrown on the screen by Drs. Martin, Clark, Nelson and Hewson.

Dr. Caleb R. Reed, of Middleport, Ohio, read a paper on

INTER-UTERINE STEM PESSARIES,

in which he favored very much their use for promoting the flow of the menses in cases of local origin, and especially those where there was an ill-developed uterus. He thought that this instrument should come in the list of emmenagogues, and that it should not be condemned with the arrogance which sometimes accompanies its discussion.

Dr. Daniel T. Nelson, of Chicago, Illinois, read a paper on

THE TREATMENT OF UTERINE MYOMA BY ERGOT, and gave the statistics which he had collected from the profession and made a good argument for this mode of treatment.

A paper by M. D. Spanton, M. D., of Hanley, England, was read by Dr. Edoes, of Manchester, England, on the subject of

CYSTITIS IN WOMAN.

Local conditions leading to cystitis in women, among which are enumerated diseased states of the uterine appendages, bands of adhesions dragging upon the bladder, and some of the affections causing obstruction to the passages of the urethra, which are often obscure and trivial in themselves and not infrequently overlooked.

Dr. William L. Reid, of Glasgow, Scotland, read a paper on

THE REMOTE RESULTS OF SHORTENING THE ROUND LIGAMENTS.

He had performed the operation eighteen times. He gave the opinions of authorities, mostly British, and which were mostly unfavorable to the operation. The discussion on this paper was also rather unfavorable to the operation.

AFTERNOON SESSION.

Dr. J. H. Kellogg, of Battle Creek, Michigan, read a paper on

ALEXANDER'S OPERATION,

and reported twenty cases. He favored the operation.

Dr. W. C. Wade, of Holly, Michigan, read a paper on

DISPLACEMENTS OF THE UTERUS.

His paper consisted of thirty-nine terse statements about displacements.

Dr. Joseph Tabor Johnson, of Washington, D. C., read a paper on

THE TREATMENT OF COMMENCING OR THREATENED PERITONITIS BY BRISK PURGATION.

Professor Vulliett, of Geneva, Switzerland, had two papers, *Progressive Uterine Dilatation and the Buried Suture with Iodized Silk in Vesico-vaginal Fistula*. They were read by Professor Cordes, of Geneva.

Dr. Addinell Hewson, of Philadelphia, Pennsylvania, read a paper on

ABDOMINAL SURGERY.

Dr. E. H. Trenholme, of Montreal, Canada, read a paper on "Extirpation of the Uterus for Bleeding Myoma."

A number of papers were read by title and the Section adjourned.

SECTION ON THERAPEUTICS AND MATERIA MEDICA.

FIFTH DAY.

The following papers were read by title: "On Collinsonia Canadensis," by John V. Shoemaker, M. D., of Philadelphia, Pennsylvania; "On Cold as a Remedy in Inflammatory Affections," by Hiram Corson, M. D., of Conshohocken, Pennsylvania; "The Therapeutics of Alcohol in Disease," by E. N. Liell, M. D., of New York, N. Y.

Dr. Justus Andeer, of Munich, Bavaria, read a paper on

RESORCIN AND ITS PREPARATIONS.

In this paper the author briefly gave the result of ten years' experience with pure resorcin. He had found it non-toxic, antiseptic, and possessing many advantages over carbolic acid, being free from odor and non-corrosive to the skin. He had obtained excellent results from it in eczema, in keloid and in parasitic skin diseases, as well as diseases of mucous membranes. In the form of keratine-coated pills, it can be given for bronchitis, or in combination with castor-oil (one to two per cent.) for diarrhea and dysentery. For local use it may be combined with cacao-butter as a salve, or it may be made up into a soap of varying strength, from one per cent. up. Failure to obtain satisfactory results from its use may arise from not using a chemically pure resorcin, or from giving it in insufficient doses.

Dr. Lewin, of Berlin, Prussia, said that all are familiar with the writings of the author upon the subject of resorcin. He thought that by devoting exclusive attention to this one member of a group the others might be in danger of having their value slighted. What is the value of thymol? What does resorcin accomplish more than phenol, carbolic acid, and others of this class? He questioned the statement that resor-

cin is not toxic, since it can in large doses present a condition of cerebral confusion and excitement which closely resembles mania.

Dr. Andeer replied that the agent was an efficient antiseptic, tasteless, odorless, and in ordinary doses free from toxic effects. He considered it a valuable addition to our therapeutic resources, and superior to phenol and thymol in many respects.

Dr. William Ward, of Washington, D. C., presented a paper on

VICARIOUS RESPIRATION SUPERINDUCED IN CERTAIN DISEASES BY ADMINISTRATION OF OXYGEN-YIELDING COMPOUNDS THROUGH THE ALIMENTARY TRACT.

The reading of this paper was not finished when the hour of adjournment arrived.

SECTION ON ANATOMY.

FIFTH DAY—MORNING SESSION.

Dr. J. Neely Rhoads, of Philadelphia, Pennsylvania, read a paper on

THE ANATOMY OF STRICTURE, in which he reviewed the anatomy of the urethra, and, after comparing the male and female urethra, laid it down as a fact that the former was not a canal of uniform calibre, while the latter was. He also dwelt upon the great sensitiveness of the meatus in both sexes. After describing the different varieties of stricture, he exhibited a full set of pocket bougies, as made by Snowden, of Philadelphia. This case contained ten $2\frac{3}{4}$ -bulbs, a universal handle, and several different sound and bougie points, making a cheap, easily portable, and convenient case, equivalent, by varied combination, to twenty bougies. The principal advantage claimed by him was that the bulbous part, being in the centre of the sound, the meatus was only dilated up to a certain point, and then the smaller handle prevented further pain, while the bulb, deeper in the urethra, was dilating the stricture.

Dr. E. C. Spitzka, of New York, N. Y., then read a paper on
THE MESOCEPHALON OF THE TRUE REPTILE, and one on

THE INTER-CRANIAL NERVE-TRACTS IN THE LIGHT OF ATROPHY-METHODS OF VON GUDDEN.

The observations related to two subjects which were somewhat connected. The first has the significance of the fact that the post-optic lobes varied so much in the animal scale as to have actually been overlooked in some reptiles and amphibia, and to be enormously overgrown in others. He believed to have found this in the

relation of these bodies to the auditory nerves. Where these were large the post-optic lobes were large. This observation was confirmatory of the experiments of Baginsky and others.

In the discussion which followed Dr. Frank Baker, of Washington, D. C., asked Dr. Spitzka if he could trace the nerve-tract throughout its whole course. He remarked on the importance of the conclusions and asked as to the course of the atrophied nerve-tracts. The metameric division of the brain and skull could not, he thought, in the present condition of our embryological knowledge, be clearly made out. There could be no doubt that the number of somites was large, and as the differentiation had been very great it was doubtful whether we could properly determine the segmental value of each nerve. The auditory nerve was probably complex. In conclusion, he asked what Dr. Spitzka had observed as to the separate origin of the cochlear and vestibular branches.

Dr. Augustus C. Bernays, of St. Louis, Missouri, in reply to Dr. Spitzka, remarked that the sense of hearing was only a modification of the sense of touch, and that the auditory nerve was probably only a sensory portion of the same spinal nerve of which the facial was the motor portion. He could not see how the nerve of hearing could become attached to the post-optic lobes. He thought that the theory of Dr. Spitzka could not readily be made to agree with this proposition.

Dr. Spitzka, in reply to Dr. Bernays, said that while recognizing the importance of the segmental theory, he did not think it advantageous to engraft biological cranial nerve-anatomy on physiological cranial nerve-anatomy. If the two sets of observations conflicted, he would sacrifice the former.

In answer to Dr. Baker he replied that the difference between the two divisions was recognized; the vestibular branch went to the cerebellum. His observation related only to the cochlear branch.

Dr. A. H. P. Leuf, of Philadelphia, Pennsylvania, then read a paper on

THE PROPER METHODS IN THE STUDY OF ANATOMY,

in which he enumerated the many defects in the present mode of teaching anatomy, and, confining his remarks principally to schools in this country, he denounced all schools, with few exceptions, in this respect as bad and unscientific. His list of defects is as follows: (1) The instruction is special as regards certain organs only. (2) It is too general as regards other organs. (3) It

is neither the one nor the other as regards still other parts of the body. (4) In generally overlooking the relations of organs to one another in a way that would be very useful to remember. (5) Failure to prepare the student's mind with an incentive to acquire anatomical knowledge before it is imparted. (6) Too little of the philosophy or principles of anatomy, which, if properly taught, would make remembrance easier. (7) The failure to clearly show the connections of anatomy with the other branches of medicine. (8) The great want of good teachers.

To remedy these many defects, he thought it necessary: (1) To teach the special anatomy of *every* organ, distinct from all others. (2) To also give a general idea or outline of each organ. (3) To never fail to do this with every organ or part of the body. (4) To invariably show the true and exact relations of the parts to each other. (5) To always create in the mind of the student a desire for the knowledge to be acquired, by showing its necessity. (6) To show in a natural way, without much artificial mnemonics, how many anatomical principles there are which, if remembered, will do alike for all parts of the body. (7) Thorough instruction as to the relations of anatomical study to the other branches of medicine. (8) To have good teachers and men thoroughly acquainted with the subject.

In the discussion which resulted Dr. Augustus C. Bernays, of St. Louis, Missouri, objected strongly to the use of mnemonics or any other artificial means of learning anatomy, and believed that it should be taught from an embryological stand-point alone.

Dr. Frank Baker, of Washington, D. C., was much opposed to the manner of teaching anatomy where only a collection of isolated facts was given. His definition of anatomy was the science of structure.

Dr. E. C. Spitzka, of New York, spoke in strong terms against the pernicious methods of teaching anatomy, and thought we should try to raise the standards of our study of anatomy to a level with those in Europe.

Dr. F. W. Langdon, of Cincinnati, Ohio, then read by title a paper on

THE DIDATIC TEACHING OF HUMAN ANATOMY.

AFTERNOON SESSION.

The afternoon session was of short duration, and much time was occupied by Drs. F. C. Shaefer, Joseph N. Dickson, and others in discussing the subject of

SKIN GRAFTING.

The President, Professor Pancoast, of Philadelphia, gave a demonstration of the peritoneum

and its position in relation to the abdominal organs, by means of different-sized sponges and mosquito-netting. This demonstration is of great assistance in making clear to students the manner in which the peritoneum, a closed sac, surrounds the abdominal viscera. He also stated his theory as to the development of the peritoneum. The Section then adjourned.

SECTION ON DISEASES OF CHILDREN.

SEPTEMBER 9TH—FIFTH DAY.

Dr. A. B. Judson, of New York, N. Y., Vice-President of the Section, called the meeting to order. He said that it might be called the first meeting of the Subsection of Orthopaedic Surgery, the embryo of what may in the future be a mature section.

A paper was read by Mr. William E. Balkwill, of London, entitled

THE TREATMENT OF CONGENITAL CLUB-FOOT, DEMONSTRATED BY THE EXHIBITION OF APPARATUS.

The writer limited himself to the consideration of talipes equino-varus. He believed that in the majority of cases tenotomy will be required. The question of an early or late operation is to be answered by considering the general condition of the child rather than the nature of the deformity, as a severe case may be as thoroughly and permanently reduced, if circumstances make a delay desirable, a few months after birth as if the operation was done in the first week. He divides the tibialis posticus, the tibialis anticus, and the plantar fascia, in the order named, and after an interval of three weeks of the diligent use of a flexible splint and bandages, he is ready to proceed with the division of the tendo Achillis. Then, instead of extending fully and at once after tenotomy of the Achillis, and keeping the foot in the new position, he takes more time, and, in fact, uses the foot as Isaac Walton did his frog—no force, no undue pressure, but careful guidance.

Mr. Balkwill then exhibited a large number of ingenious instruments designed to accomplish complete reduction by the gradual method. Their action was controlled by the pinion-key in some instances, and in others by modifying with suitable wrenches the tractable steel of which they were constructed. He deplored the existence of a strong prejudice among people of all classes against the wearing of "irons." If properly constructed and correctly applied, they should do the work required, not only without pain, but with an increase of comfort, arising from the increased facility which they add to locomotion. He feared that surgeons were largely

responsible for the existence of this prejudice, from the fact that it is so much easier to refer the case to an instrument-maker than to give to it the care and painstaking which it requires and without which success is impossible.

A paper was then read by Professor Lewis A. Sayre, New York, N. Y., entitled

SECTION OF CONTRACTURED TISSUES ESSENTIAL BEFORE MECHANICAL TREATMENT CAN BE EFFECTUAL.

The writer defined his position as follows: A *contracted* tissue is one that is simply shortened, but which can be elongated by careful, continuous, and judiciously applied traction and manipulation. A *contractured* tissue is one which has undergone some change of structure in the fibrillæ of the muscles, and which cannot be elongated or stretched. Distortion or deformities which are the result of *contractured* tissue can, only be removed by forcible rupture of the same, or by cutting before traction is applied; but similar deformities resulting from simply *contracted* tissue may frequently be rectified by manipulation and constant traction, properly applied, without section of the tissue. How are we to know whether the tissue is *contracted* or *contractured*? If in any case of club-foot or other deformity from muscular contraction we stretch the shortened parts to their utmost tension by manual force or mechanical aids, and when the parts are thus stretched we suddenly add to the tension by pressing with the thumb or finger on the part thus stretched, or by pinching the stretched tissue between the thumb and finger, and if by either of these acts we produce a *reflex* spasm, or sudden shivering of the whole body, that muscle, tendon, or tissue, thus yielding this *reflex* spasm is *contractured*, and cannot be elongated *without severing* of its fibres. If, on the contrary, when the test is applied as above described, and no *reflex* irritation or muscular spasm is produced, it is evident that the parts are simply *contracted*, and can be further elongated by persistent constant traction and proper manipulation, and therefore do not require division.

To attempt to stretch a *contractured* tissue causes unnecessary pain, and exposes the patient to the risk of disturbances of the nervous system through long-continued irritation. In all such cases it is infinitely safer to make such division by subcutaneous section than by manual or mechanical force. Treatment is to be completed by massage, friction, active and passive motion, electricity, and such mechanical appliances as may be required in each case. A number of illustrative cases were given.

The Vice-president, Dr. A. B. Judson, thanked

Mr. Balkwill for bringing over the instruments which he had shown, braving the terrors of the New York Custom House in order to add to the interest of the Congress. His view of the subject was that the treatment of congenital club-foot is divided into two stages by the arrival of the time when the child begins to try to stand. Before this time, when the child's weight does not interfere with corrective procedures, the *varus* should be reduced by whatever means may be at hand—a succession of carved wood splints, tractable metal splints, adhesive plaster, plaster-of-paris splints, the artificial muscles; or a combination of these methods, one with another, or with tenotomy, as the case may require. Whatever the plan adopted, by the time the child begins to put his weight on the foot, the *varus* should be so far reduced that the sole is presented squarely to the ground. Of course, if nothing more be done, the *varus* would return when walking begins, and would soon be as bad as ever; and what is now required in this, the second stage, is a slight splint extending up the inner side of the foot and leg, and so fitted with buckles and webbing that pressure may be distributed where the steel is directly applied, and concentrated on the outer side of the ankle, where it can be easily borne, because made by webbing-straps. The object of the splint is simply to give the foot a push toward *valgus*, so that when the child steps the sole presents squarely to the ground, or a little more than squarely. Every foot-fall will then be an impulse in the right direction, applied with the force of the rapidly increasing weight of the body. With tractable metal in the splint *varus* may be absolutely reduced, and, if it were desirable, even *valgus* could be produced.

Mr. Edmund Owen, of London, England, stated that he was heartily devoted to what he believed was rightly called the American plan. The old plan consisted in dividing first the tendon of the *tibialis posticus*, and perhaps also that of the *flexor longus digitorum*, and then in putting the foot up in only a slightly improved position; then, when it was supposed that plastic effusion had connected the divided ends of the tendon, to begin with Scarpa's shoe to correct the inversion. Later on, perhaps weeks afterward, when the inversion had been fairly dealt with, the tendon of *Achilles* was divided, and in a few days flexion of the foot was started with. Mr. Owen considered that this plan was now, even in England, giving place to the method of dividing all the tendons at one and the same time; and not only that, but bands of fascia and ligament were also divided. He called particular attention to

the need of dividing the anterior part of the internal lateral ligament of the ankle-joint, which was much concerned in keeping the frontpart of the tarsus flexed and inverted on the head of the astragalus. Scarpa's shoe should, together with mechanical spinal supports, be relegated to the limbo of extinct surgical instruments; the introduction of the plaster-of-Paris treatment had rendered them superfluous. There need be no fear of failure of union occurring in the divided tendon after putting the foot at once in the correct position; plastic effusion and blood in the sheath of the tendon quickly prepared the way for an efficient splicing of the tendon.

Mr. Owen could not accept entirely all that Professor Sayre said as to the difference between contracted and contractured tendons; he would not deny its existence in fact, but he was not prepared entirely to accept it. He commended, in the highest terms, Dr. Sayre's teaching and his practice.

Dr. E. R. Lewis, of Kansas City, Missouri, said that if the distinction made by Professor Sayre was correct, it was a most valuable diagnostic sign. He would try it, and he hoped to be successful.

Dr. Hingston, of Montreal, Canada, stated that formerly it had been his custom to delay tenotomy till the period of teething, at least; but he had long ago accepted the dictum of Dr. Sayre, that one is warranted in delaying the operation only till the tenotome can be procured. He had followed this rule with almost invariable satisfaction.

Professor D. A. K. Steele, of Chicago, Illinois, advocated the plan of treatment which had been outlined by Mr. Owen. His experience had led him to the adoption of the following rules of practice: (1) Operate as early as the child is brought. (2) Divide all tissues that prevent perfect restoration of the foot. (3) Retain the foot in a correct position by plaster-of-Paris dressing. (4) Leave the toes out in order to watch the circulation. Antisepsis, of course to be secured.

A tripod was then erected, and Dr. Lewis A. Sayre and Dr. Lewis Hall Sayre suspended a patient of Dr. Magruder, of Virginia, and applied

THE PLASTER-OF-PARIS DRESSING FOR POTT'S DISEASE.

The following papers were afterwards read by title: "Forcible Correction of Contracted Knee-joint," by Dr. E. H. Bradford, of Boston, Massachusetts; "The Progress of Orthopedic Surgery," by Mr. Noble Smith, of London, England; "Anchylolysis of the Knee-joint in a Straight Position by Excision, as a Remedy for the Atrophy

and Deformity following Acute Poliomyelitis of Childhood," by Dr. Stephen Smith, of New York, N. Y.; "The Treatment of Lateral Curvature of the Spine," by Dr. James Knight, of New York, N. Y.; "The Results of the Treatment of Hip Disease by the so-called American Method," by Dr. A. B. Judson, of New York, N. Y.; "The Diseases of Faulty Habit," by Dr. James F. Goodhart, of London, England; "The Treatment of Strumous Glandular Enlargement of the Neck," by Dr. Martin G. B. Oxley, of Liverpool, England; "The Nature and Antiseptic Treatment of Whooping-cough," by Dr. Moncorvo, of Rio de Janeiro, Brazil; "On Acetonuria in Children," by Dr. Adolph Baginsky, of Berlin, Germany; and "Mediastinal Tumors in Children," by Dr. Oscar Wyss, of Geneva, Switzerland.

The Session was closed by a few valedictory remarks by the President.

At the close of the Session, initiatory steps were taken to form

AN AMERICAN PEDIATRIC ASSOCIATION, with Dr. J. Lewis Smith, of New York, N. Y., and Dr. W. D. Booker, of Baltimore, Maryland, Provisional President and Secretary.

SECTION ON OPHTHALMOLOGY.

FIFTH DAY—MORNING SESSION.

The Section being called to order, Mr. Henry Power, London, England, presented a new pattern of *ophthalmoscope, folding handle*, for vest-pocket use, which could be carried in a case much like a pair of eyeglasses. A paper was also mentioned as having been sent by Dr. Prince, of Jacksonville, Illinois, *On Some Points in the Treatment of Dacryocystitis and Affections of the Nasal Duct*, with a new canula for drainage, which instrument was exhibited to the Section.

Professor E. Smith, of Detroit, Michigan, then read a paper on

THE TREATMENT OF ABSCESSES AND ULCERATIONS OF THE CORNEA WITH JEQUIRITY.

He remarked upon the experience, common to all, of the difficulty in procuring the absorption of pus in the cornea, and noted the existence of the same tendency in all closed abscesses. The best means of arresting suppuration and of getting rid of the pus when formed, has engaged the attention of the writer, with many others, for years. A paper on the above subject, in the spring of 1888, with another published in October, 1888, gave the result of his observations up to that time. He had since had many cases of ulceration of the cornea speedily relieved, and an astonishing clearing up of the cornea

after its use. He believes the remedy affects the proliferation in corneal corpuscles. After explaining his impression of the mode of action of the remedy, he proceeded to describe his manner of using it. He does not use a strong preparation, and aims not to produce a sharp inflammation, as is done in trachoma. He uses a three per centum solution, or a very minute quantity of the powdered seed. It is applied sparingly, till a mild catarrhal inflammation is set up, characteristic of the remedy, and in some cases there may be slight membrane. The object is to avoid a high degree of reaction. The eye is kept washed out with a two per centum solution of boric acid, and the result is almost uniformly surprisingly good. The corneal cicatrix is often hardly apparent to anyone but the patient.

Dr. Galezowski, of Paris, France, did not like jequirity. In his observation it had often produced ulceration and destruction of the cornea and synechia anterior, and in some cases enucleation had to be performed to avoid sympathetic trouble. He thought jequirity exerted a very bad action on the cornea. The modification in Professor Smith's method is doubtless in the amount of the drug used. Dr. Galezowski thought it a dangerous method.

In intermittent fever he had found ulceration of the cornea, which yielded to the administration of quinine. In another case, lasting for several months, after the extraction of a tooth, cicatrization occurred. The best treatment for corneal abscess and ulcer is the antiseptic method. He applies the powdered iodoform directly to the surface three times a day, under cocaine, and uses the steam douche two or three times a day, ten minutes at a time. When it is not doing well cauterization with a solution of nitrate of silver, twenty-five centigrammes to ten grammes may be done once or twice a day.

Dr. S. O. Richey, of Washington, D. C., wished to know whether scraping the ulcer before applying any remedy had not been found of advantage by others as it had in his hands.

Professor Smith, in closing, said that Dr. Galezowski had used jequirity in trachoma, in the way described by De Wecker, till he obtained marked diphtheritic membrane. In these cases it was the swelling and chemosis that caused strangulation and loss of cornea. He should hesitate to use jequirity in sthenic cases; it was the asthenic cases requiring stimulation that were suitable for this treatment.

Professor D. S. Reynolds, of Louisville, Kentucky, read the next paper on the

NECESSITY FOR REFORM IN THE MANNER OF DESIGNATING LENSES.

He said that often the difficulty was more in the defective apparatus than in the methods employed. The method which he employed was to abandon the idea of measuring and denoting lenses by their focal distance, and make the radius of curvature the measure of the lens, having them measured from a unit of ninety degrees, or the quadrant of a circle. The lenses might be graded at intervals of five or ten minutes, and in the higher grades have an interval of fifteen minutes. He gave a description of an instrument of Professor Snellen's for determining the value of a lens. It consists of a stand with upright, on which a horizontal beam carries at one end a lamp, and near it a positive lens of one-sixth. In the centre of the beam is placed a clamp for holding the lens to be tested. On each side of the centre, on the beam, is placed a lens plano-convex one-twelfth. Near the lamp is placed a copper disk, perforated by two lines of minute holes, one line perpendicular and the other horizontal. At the farther end of the beam, working in a graduated brass plate, is a frosted glass disk. Steel tapes pass up through the stand and along the beam, connecting with the frosted disk and the perforated plate. It is easy, by this means, to note the exact point where the point of light reaches the frosted disk without any red or colored margin, and by revolving the lens on trial in the clamp any irregularity can be easily ascertained.

Dr. Landolt, of Paris, France, wished to know how the essayist would express in writing the power of the glass by his proposed method. In reply, Professor Reynolds wrote the prescription for a supposed case:

O. D. O. S. B. S. C.
 $+ \frac{1}{10} \text{ c. } 90^\circ \mid \bigcirc + \frac{1}{10} \text{ s. } \mid + \frac{1}{10} \text{ c. } 75^\circ \mid \bigcirc + \frac{1}{10} \text{ s. } \mid 2\frac{1}{2} \text{ c. } 11$

Mr. J. Richardson Cross, of Bristol, England, wanted to know the focal length of the unit of Professor Reynolds' system, and received the reply that it would be something less than an inch.

Dr. E. Landolt suggested that the radius of curvature, while most accurate as a unit of measurement, is not satisfactory, as with the same radius there may be differences in composition and differences in the refractive power. The manufacturers of lenses will tell you that the refracting index of lenses is a variable quantity, and no one can make lenses, even of the same material, that will always have an exactly similar refracting index.

Professor S. M. Burnett, of Washington, D. C., thought we could not get along without a knowl-

edge of the focal distance of the lens. His objections to the proposed change were that Professor Reynolds' plan lacks simplicity, and that the present method seems to answer the purpose very well and is universally adopted, and that the change would be very difficult to make.

Mr. Cross thought that the proposed plan was based on scientific accuracy. But, as a reformer, the author must not expect to succeed until he can give us a medium which is as accurate as his quadrant. The speaker himself was perfectly content with the accuracy of the meter. Of course it is not quite accurate, but much more so than any other measurement we have. Then all refraction deals with focal length. Our patients want to see at a certain distance. We fit them with glasses to see to a particular point. Again, contrast the simplicity of the meter with the complicated formula of Dr. Reynolds. It is as bad as going back to the inch system.

Dr. G. W. Allyn, of Pittsburg, Pennsylvania, was unwilling to return to the old system of numerals in refraction. We deal constantly with distance, and distance is measured on a straight line. He, too, thought the adoption of the method would be a step backward.

Dr. J. L. Thompson, of Indianapolis, Indiana, thought we could not always make scientific methods practicable. He was well enough satisfied to write in the metric system. There was no certainty in the composition of spectacle lenses, even in pebbles, which are so much talked about all over the country, and of which so few are sold.

Dr. E. Jackson, of Philadelphia, Pennsylvania, then read a paper on

THE DESIGNATION OF PRISMS BY THE MINIMUM DEVIATION, INSTEAD OF BY THE REFRACTION ANGLE.

The object of the paper was to urge the advisability of extending the same principle to the numbering of prisms that now obtains in relation to lenses. The refracting power of the prism depends upon the substance of which it is composed, and upon the medium in which it is placed. The latter, being air, can be eliminated in practice. The same difference existing in the material of which prisms are made as in that of spherical and other lenses, it follows that prisms cut to the same angle may differ very much in the extent to which the ray is bent in passing through them. For instance, a prism marked 8° may have a refracting power of 1.51° or $2\frac{1}{4}^\circ$, and yet be the correct one according to the prescription, by our present method of measurement. Among a number of prisms tested, only one set came within sixteen per cent. of the sup-

posed standard. He proposed to take as the basis of measurement the minimum deviation or the deflection of the ray when it passed through parallel in the prism to the base, or where the angles made with the surface on entering and leaving were the same. The change could easily be made, without producing confusion with the present system, by marking the number of the new system inside a circle, thus: (2).

Dr. E. Landolt, of Paris, expressed himself as much interested in the paper. It was exceedingly meritorious, logical and practical, and he would regard it as an honor to carry out the proposal to support the idea. He suggested that the section take up and support the opinion expressed in the paper.

Mr. H. Power, of London, England, moved that a committee be appointed by the chair to take charge of the subject, and to report at the next congress. Carried unanimously.

Dr. G. S. Norton, of New York, N. Y., read a paper on the

RELATIVE IMPORTANCE OF SMALL DEGREES OF ASTIGMATISM AS A CAUSE OF HEAD-ACHE AND ASTHENOPSIA.

He related a number of cases which had come to him, where the correction of astigmatism of only 0.25 D. caused relief to follow with remarkable rapidity. His conclusion was that 0.25 D. of astigmatism may, and not infrequently does, produce disturbance, which its correction relieves. It most commonly occurs in children and young girls that small degrees occasion disturbance and asthenopia. If the hyperopia is of high degree, it is better to try to correct the trouble with spherical glasses first.

Dr. F. B. Tiffany, of Kansas City, Missouri, next read a paper under the title of

AMETROPIA,

introducing a series of statistical tables based on examination of over two thousand school children in Kansas City, Missouri, including three races—white, red, and black. The object of each examination was to ascertain the condition of the eyes, nature of the affection, and endeavor, if possible, to remedy it. The examination took in hypermetropia, astigmatism, and spasm of accommodation, as well as myopia.

The matters of light and ventilation were so well arranged that they might be eliminated as factors in the result. It appeared as if the greater number of ametropes in proportion were in the higher classes, and it might be said that ametropes were more fond of study than emmetropes. Spasm of accommodation developed into myopia. If the eyes were examined each year and corrected carefully, the anomalies would gradually

diminish. Hazel eyes are most affected by myopia; blue and gray are stronger than hazel, brown and black. Females have more myopia than males, and Indians are mostly emmetropic.

Professor S. M. Burnett, of Washington, D. C., remarked that he suspected that in the prompt relief spoken of by Dr. Norton the astigmatism was between 0.25 D. and 0.5 D. He found that when one of these cases did so well with 0.25 D., that the total amount was somewhat greater.

Dr. Herbert, of Philadelphia, Pennsylvania, has been astonished to find how little annoyance is felt in high degrees of ametropia and astigmatism, and how much from slight degrees. He had had to not infrequently prescribe as low as 0.2 D.

Dr. R. Tilley, of Chicago, Illinois, remarked on Dr. Tiffany's paper that every new-born child is hypermetropic. Myopia does not generally occur till six or seven years of age.

Dr. H. B. Young, of Burlington, Iowa, remarked that the astigmatic glass determined under atropia was not always accepted. The ciliary muscle did not always readily change its compensatory contraction, and correction by cylinders was sometimes worse than the disease.

Dr. Dickinson, of New York, N. Y., related a case of reflex irritation, with nausea, etc., existing three years, which had been promptly relieved by correction of a very low-power of cylinder.

Dr. Baldwin, of Montgomery, Alabama, wished to state, as to the condition of the negro in regard to refractive troubles, that in over nine hundred cases he had only found an error of refraction in about eight per centum. This seems to bear out the old doctrine that civilization increases eye troubles.

Professor A. Calhoun, of Atlanta, Georgia, stated that it had been his experience that the negro had very little refractive trouble, and if they have not been to school none whatever. He had known of but one near-sighted negro up to ten or fifteen years ago. Now myopia is becoming more frequent. They are subject to other eye troubles, specific affections of the cornea and other parts, but they do not seem to be so serious as in the white, and get well very easily, with almost no treatment at all. Glaucoma is of extremely uncommon occurrence among them. He had only seen three cases among negroes.

Professor Burnett, of Washington, D. C., could corroborate what Dr. Baldwin and Professor Calhoun had said concerning the increase of myopia in the negro of late years, and desired also to call attention to the fact that the negro does not squint. He thought that glaucoma occurred in the negro, although, perhaps, not to the same extent.

Dr. Galezowski, of Paris, France, said that, in many cases, asthenopia was caused by small degrees of astigmatism, but in many others this had not the effect. He instanced the case of a student, who suffered great inconvenience when using his eyes. Professor Hirschberg, of Berlin, found a slight degree of astigmatism, and corrected it, which relieved the patient for two weeks, and then he became worse again. He came to Paris, and under Dr. Galezowski's notice, who suspected that it was not the ametropia that was causing the trouble. Examination disclosed tenderness over the supra-orbital notch, over the right eye, and all around the left eye. He suspected trouble with the teeth, and found one that had been plugged, but was not tender. He had the plug taken out, and found a small piece of rubber crowded up through the top of the tooth. The tooth was extracted, and the patient recovered. These cases are not infrequent. In other cases it may be a slight alteration in the lachrymal puncture. To test the matter, Dr. Galezowski injects tepid water, and if it enters the nose badly, it is treated by daily injections and dilatation of the canal, not catheterization.

Professor Reynolds, of Louisville, Kentucky, remarked upon the difficulty of having the patient wear glasses properly, especially in people who were not in the habit of wearing them. In some cases the distance between the eyes has to be so nicely adjusted that the patient must have a pair for distance a little wider apart, and a pair for near work closer together.

Dr. H. Gradle, of Chicago, Illinois, found very few of his cases of asthenopia relieved by weak cylinders.

Dr. Leartus Connor, of Detroit, Michigan, does not recollect that he has had occasion to use as little as 0.25 D.

The president referred to his own experience as corroborating the remarks of the previous speakers in relation to errors of refraction in the negro.

Professor E. Smith, of Detroit, Michigan, found a great amount of refractive error among negroes, and said that it was not uncommon for him to operate upon them for strabismus. It may not be so in the pure negro. In his section of the country they are considerably mixed.

Dr. Erwin, of Ohio, stated that as oculist to a railroad company, he had found that about twenty-five per centum of the men employed in the transportation service are astigmatic, and yet not more than twenty per centum of those referred for special examination have astigmatism. None of the twenty per centum complained of vision, unless referred for spectacles, and only

ten per centum of those so referred required correction of astigmatism to relieve suffering.

Dr. Norton, in closing the discussion, said that he had not advanced the subject as anything new. He agreed with Dr. Galezowski that many other causes might produce asthenopia and neuralgic symptoms. As to the exact determination of the amount of astigmatism, he used two sets of radiating lines, one coarser than the other, and when the patient was able to see all the lines in the finer diagram he was quite sure to be accurately corrected.

In adjourning the Section, the President, thanked the members for bearing with him and so cordially supporting his endeavors, and expressed the hope that it had been a season of pleasure and profit to all.

SECTION ON OTOTOLOGY.

FIFTH DAY.

A paper by Dr. B. Loewenberg, Paris, France, was read by title, on

PHYSIOLOGICAL RESEARCHES ON NASAL VOWELS.

In this paper the author notes first some characteristics of nasal vowels; then certain changes observed in their pronunciation because of adenoid vegetation in the upper air-passages. He gives a table showing comparative pronunciation of the "French nasal vowels," with their equivalents in English and German.

The results of his investigations are given to show how the nasal vowels are formed.

He says: "Amongst the different problems this matter involves arises the question of the musical notes belonging to or characteristic of each nasal vowel. In other terms, we must ascertain which is the sound, or which are the sounds the vocal cavities are tuned to for each of these."

He alludes to similar investigations by Donders, Helmholtz, Koenig, and others regarding "the pure (not nasal) vowels," and says that he adopted methods of investigation similar, in some respects, to some of their modes. The results are given, in tabular form, of the musical notes for each nasal vowel.

Dr. Henry Byrd Young, of Burlington, Iowa, read a paper on

THE TECHNIPHONE SNAP—A SUBSTITUTE FOR THE WATCH, AS A TEST FOR HEARING.

The insufficiency of the watch as a test for hearing, is well known; and the desirability of something which will more nearly approach that point of excellence reached by Snellen's types as a test for vision, need not be discussed.

This ground has been often traversed, and

recently again in a very thorough manner by a special committee of the American Otological Society. It is therefore only necessary to say that such a test must be some device which will be simple of construction, cheap, easily managed and reasonably uniform. And combining these conditions very happily and completely is the little device herewith presented and known as the *techniphone snap*—the sounder of the stringless piano called the techniphone.

It is simple in construction—consisting merely of a piece of strap steel about $\frac{1}{4}$ m. in thickness, 3 c. m. in length, and 1 c. m. in width, dished (dented) slightly at its center in such a way that the edges are not stretched.

It is cheap. This is self-evident.

It is easily managed. Placing the ends of the strip against the thumb and a finger respectively, preferably of the right hand, the center is seized edge-wise by the thumb and a finger of the other hand and made to spring against its concavity. When an excursion of about 2 m. m. has been made, the part that is stretched reaches its point of reversal and changes with a distinct snapping sound. Released it springs back, and the sound is repeated. This sound can be produced rapidly, slowly or irregularly as the operator may desire. If the sound is louder than necessary it can be nicely and definitely muffled by seizing the center flat-wise instead of edge-wise—the thumb or finger resting on the point of greatest convexity.

It is reasonably uniform. Experience has shown that in the manufacture of these snaps there is no appreciable difference either in pitch or intensity among those having identical measurements. To get a change of pitch there must be a change of dimensions; and other things being equal, the longer strip usually means a lower pitch and the shorter a higher pitch.

Taking it all in all it is a more convenient test than the watch (a stop watch) and, being just as good, should be substituted for it. That it does not fully reach that point of excellence found in Snellen's types as a visual test, is conceded. It is possible to show a relationship between the image of 5 angle and satisfactory vision by a careful computation of the retinal and organs involved. To establish a gauge of such mathematical exactness for the hearing power a better knowledge of the acoustic nerve and its physiology is yet required. If, however, it is borne in mind that the test is not intended to decide how much a patient *should* hear, but merely how much is heard at one or another time; and that with trifling expense and little trouble the

patient may be subjected to a number of tests by snaps of different dimensions with their corresponding differences of pitch, the comparison with Snellen's types is not unwarrantable. One great advantage which it possesses over the watch is to be noted in the possible improvement of case reports; and for this, if nothing else, it should be generally adopted. How often, for instance, is it seen recorded that a patient's hearing "as tested by the watch" was $\frac{3}{8}$ in the diseased ear? And what real information is to be gotten from the statement? It is supposed, of course, that the patient heard at twenty inches only, that which had been heard at fifty. But the reader is uninformed as to the character of the sound and is left to wonder whether the hearing must be extraordinarily acute generally, or particularly susceptible to such sounds to perceive it at the greater distance.

With a snap of given measurements there goes a sound of definite pitch and intensity; and it becomes unnecessary to try a number of what may be estimated as normal ears (as recently advised with the watch by the Committee of the American Otological Society) in order to get the so-called average maximum distance at which it can be heard. It only needs be noted that the patient heard the snap *free* at such a distance, or muffled at such another distance; and the remote reader testing his own hearing by the same sound may form a judgment accordingly.

In conclusion, the writer desires to say that his attention was called to this snap quite accidentally through a personal meeting at the house of a mutual friend, with the inventor of the techniphone. Its adaptability for the purpose now proposed instantly suggested itself. The snap was procured, used, and found so satisfactory that it was deemed proper to call the attention of others to it. It is therefore before you.

Professor E. De Rossi, Rome, Italy. We have not, at present, any accurate tests for hearing, to determine the condition of the power of hearing. Not even the Acoumeter of Politzer is as serviceable as the watch, which we always carry in our pockets, and the human voice. The watch constitutes a very fair test of the perception of sound, and the human voice is practically the most important sound that the patient desires to perceive. Until such time as we have some more nearly perfect instrument, we must rely on the old instruments which have hitherto served us.

Dr. S. O. Richey thought improvement in any affection of the ear should be judged by structural changes, and that the surgeon should not rely on improvement in function, alone, to

decide the more healthful condition of the ear. When the structure is made normal, proper functional activity follows. Tests are chiefly valuable in differentiating the parts of the ear affected, and for indicating the final result, by comparison with the original indications by the same test.

A paper by Dr. L. J. Lautenbach, of Philadelphia, Pennsylvania, on the use of NITROGLYCERINE IN TINNITUS AURIMUM, was read by title in the absence of the author.

He claims that it has, in his hands, proven to be a valuable remedial agent in the treatment of that troublesome symptom and consequence of ear-disease, tinnitus aurium.

In the paper an effort is made to indicate the special conditions in which this remedy will be found most efficient in relieving this symptom; the most important instances being those in which heart complications exist. He prescribes the remedy in pills, giving one-hundredth of a grain at a dose, to be taken once or twice a day.

A paper was read by Dr. G. W. Allyn, Pittsburgh, Pennsylvania, on the PREVALENCE AND THE TREATMENT OF CHRONIC SUPPURATION OF THE MIDDLE EAR.

The author of the paper, after dwelling upon the frequent occurrence of these cases, and the great neglect of them generally, both by patients and physicians, made an urgent plea for more thorough and more scientific treatment of them, especially by physicians engaged in general practice who frequently are called upon to treat them in the acute stage of the affection, when it is most amenable to treatment. He attributes much of the existing indifference regarding them to ignorance, on the part of many patients, of the gravity of many of the cases, and indifference on the part of the physician who often assumes charge of the case with reluctance, which too frequently comes from want of familiarity with true nature and location of the inflammation.

After reviewing the usual methods of treating this affection, which vary with the peculiarities of the individual cases, he bears further testimony of the value of peroxide of hydrogen, as a means of efficiently cleansing the cavity of the tympanum, and of the impalpable powder of boric acid as an antiseptic and as a means of controlling the suppuration process.

After exhibiting some instruments and apparatus designed for examination and treatment of ear cases, which concluded the work of the session, the president thanked the members of the section for the interest manifested in the work

during the sessions, both in the character of the papers presented and the discussion of them, and for their cordial co-operation in the effort made to have the work of the section contribute to the material advancement of otology, and he then declared the last session of the section closed.

SECTION ON LARYNGOLOGY.

FIFTH DAY—MORNING SESSION.

In the absence of the authors, several papers were read by title. The only one read and discussed was upon

THE ACTION OF THE EPIGLOTTIS IN SWALLOWING,

by Carmalt Jones, M. D., London, England.

The old idea, and perhaps the one which is even now most prevalent, is that epiglottis acts like a lid hinged to the base of the tongue, and by a simple backward movement covering the larynx and directing the food into the œsophagus. The author does not believe that it has any such simple action as that. There is always a slight regurgitation of food and liquids as they are grasped by the middle and inferior constrictors, which would be apt to lift up the epiglottis and pass beneath it. As a result of personal experiments, he finds that the epiglottis on irritation folds the sides together so as to grasp the upper part of the larynx. When this spasm occurs one must wait until it relaxes before trying to pass a brush into the larynx, or it will glide over the epiglottis into the œsophagus. He thinks that the backward movement of the tongue in swallowing is, for the most part, theoretical. One can swallow well with the tongue held between the teeth or firmly grasped by the fingers. There is only a slight effort to draw it back. We swallow more through the action of the pharyngeal muscles. The larynx is raised toward the base of the tongue, and the constrictor muscles do much toward closing it. The epiglottis is drawn down by muscular action and moulds itself about the upper part of the larynx instead of acting like a simple lid.

Dr. O'Dwyer, of New York, N. Y., said that in trying to lift the epiglottis for the introduction of the tube he has found that it is often folded about the larynx so firmly as to require a little force to pass the finger beneath its posterior border and lift it up.

Dr. William Porter, of St. Louis, Missouri, mentioned a case where he had removed the greater part of the epiglottis, and the patient had but little difficulty in swallowing. He thinks that the epiglottis is only accessory, and that the sphincters have much to do in closing the larynx.

Dr. C. S. Allen, of New York, N. Y., related the case of a syphilitic patient where the center of the epiglottis had been destroyed down to its base. On irritation, the long, thin borders, which were left with muscular attachment intact, were closely approximated and formed a fair protection to the larynx.

General discussion followed as to the difference in action under irritation and when simply swallowing.

There being no other papers for the morning session, Professor E. F. Ingals, of Chicago, Illinois, explained a very practicable method of obtaining an abundant supply of compressed air. He had a large kitchen-boiler placed in the basement and connected with the running water, which had a pressure of thirty or forty pounds. The water entering the bottom of the tank compressed the air in the upper part. As the air was used he would allow the water to run into the waste-pipes and air enter the tank from above, and then turn on the water-pressure again.

Dr. C. Slover Allen, of New York, N. Y., presented to the Section

A NEW SNARE AND ECRASEUR.

The advantages of the instrument were shown. It can be used with one hand, even when the greatest power is applied, while the other hand is free for holding the speculum. It is made of steel throughout, so there is no possibility of its breaking. The ends of the wire pass beneath a small eccentric, and are quickly fastened or released by the simple movement of a lever. The angle of the instrument is such that no part of it or of the hand interferes with a clear view of the part operated on. The rings for middle and index fingers are attached to either end of a double lever, crossing the sliding frame and pivoted to it at the centre. The lever carries a ratchet-catch on either side, which fits into ratchet teeth on the sides of the square rod or frame. The thumb-ring is at the end of this rod. When both finger-rings are pressed upon, the sliding frame is drawn down and held by the ratchets, and the wire loop suddenly contracted upon the tumor. The alternate movement of index and middle fingers causes the advance of the ratchet on one side while the other holds, and the wire is drawn down great leverage power that will cause it to cut through dense tissue.

AFTERNOON SESSION.

A paper was read on

THE LONGITUDINAL TENSION OF [THE VOCAL CHORDS, ITS PHYSIOLOGY, AND ITS DERANGEMENTS,

by Dr. C. M. Desvernine, Havana, Cuba.

The paper was the result of a long series of experiments and dissections, showing the isolated action of each separate muscle, and the effect on the vocal chords where different groups acted as co-ordinate factors. It was exhaustive in treatment, the subject of both in the experiment on the cadaver and upon the action of the muscles in the normal larynx of a living subject. The paper showed the result of hard work, and good, earnest investigation.

TREATMENT OF CHRONIC STENOSIS OF THE LARYNX AND TRACHEA BY INTUBATION,

was the title of a paper read by Doctor J. O'Dwyer, of New York, N. Y. He first gave a short sketch of his earlier experiments, and passed around the Section specimens of his tubes showing the gradual improvement from the crude, round and oval short tubes first used to the perfected ones now used. Specimens were shown of the larynx of children of different ages, with the tube inserted. Two specimens were shown of a healthy larynx and diphtheritic one of same age, showing by sections through them at various points that the diminishing of the calibre was caused, not by the false membrane alone, but by a considerable amount of submucous thickening.

The objection had been made that the calibre of the tubes for children was too small, but it was easy to demonstrate that the calibre of the small tubes was larger in proportion to the size of the trachea than was that in the adult tubes. A complete set of the instruments was shown, and the method of introducing and removing the tubes was demonstrated.

The histories of a series of cases were read where subglottic stenosis was successfully treated after tracheotomy had failed. In the first case he was forced to begin with the smallest child's tube, and gradually increase the size until free breathing space was produced, in eighteen days. The stenosis was the result of syphilitic contraction, and returned in three months; used tubes for a month, and then resorted to occasional introduction for a few hours. Now teaching her to introduce them herself. When worn for a very long time, the metal tube may cause ulceration, which is not the case with rubber. Often finds so much pain and irritation for first few hours after introduction, that he had to give hypodermic injection of morphia, in spite of previous application of cocaine.

He treated a case where syphilitic ulcers had caused adhesion of the chords and complete closure of glottis. Tracheotomy had been performed. He forced a passage through with forceps and

finger, and then used tube, but was finally obliged to remove portion of the chords. Cartilaginous support was absorbed and weakened to such an extent that he could not leave out tube. Patient disappeared for ten months with tube still in. When he removed it on her return, found obstruction by granulation tissue. This the tube. Some at first have great difficulty in swallowing while the tube is in the larynx, but soon learn how to do it with more comfort. Semi-solids are better than either solids or liquids.

In tracheal contraction and stenosis he would be inclined to open the trachea and lay in a tube with an enlarged portion or shoulder at each end, and then sew up the wound, leaving it there permanently. The trachea is far less sensitive than the larynx.

Dr. L. Browne, of London, England, spoke in the highest terms of the grand success that had attended the years of study and patient work, and said that he was commissioned to purchase a complete outfit for his hospital. He was surprised that tubes could be retained in so sensitive an organ.

Dr. O'Dwyer closed the discussion, and exhibited a laryngeal speculum and a snare for removal of membrane and small papillomata from below the vocal chords.

Dr. William Porter, of St. Louis, Missouri, read a paper in which he narrated three cases of benign tumors of the pharynx. In the second part of the paper he presented a new treatment of cystic goitre, by substituting for the usual iodine injection a piece of catgut steeped in iodine, withdrawing it after inflammation had been excited. The patient wore the compress and did not stop work.

SECTION ON DERMATOLOGY AND SYPHILIGRAPHY.

FIFTH DAY.

Professor A. R. Robinson, the President, read a paper on

ALOPECIA AREATA, WITH DEMONSTRATION OF DEEP-SEATED MICRO-ORGANISMS.

Believers in the parasitic origin of alopecia have advanced clinical facts to strengthen their theory, while those who believe in its neurotic origin, and they are in the majority, advance other clinical features to substantiate their views. Thus the circular nature of the patches, their appearance shortly after injury of the tissue, nerve-shock, neuralgia, etc., and the occasional spontaneous regrowth of hair. On the other hand, the believers in a fungus or micro-organism refer to the well-known tendency of the

disease to spread by contiguity of tissue, its occasional occurrence in members of the same family, etc. To prove either case it would be necessary, in the first instance, for the bacteriologists to make cultures, and by inoculation reproduce the disease. In the same way, those who claim a nerve-origin would be forced to show under the microscope changes in the nerve-tissue, or be able to produce a case of alopecia areata by causing an injury of a nerve supplying the scalp. The author carefully and exhaustively reviewed the literature bearing upon the subject of etiology in alopecia, and gave the observations of Eichhorst, Thin, Von Lehlen, and others who have observed micro-organisms in this disease. He called especial attention to the manner of origin and spread of the disease, the absence of inflammatory symptoms, the complete falling out of the hair, etc. If the disease depends entirely upon an organism which is so difficult to find, we should not expect so rapid and sudden a falling of the hair. The complete falling of the hair at once is against this theory of a micro-organism, as some hairs would be likely to escape its ravages and remain scattered over the patch. Again, if so abundant as to cause this, they should have been long since easily detected. The fact of broken-off hairs free from the fungus at the seat of fracture, the manner of the fall of hair, and the condition of these hairs do not permit of a fungus as a cause. Redness in the patch is an exceptional condition, and not to be suspected of being due to a parasite. The loosening and falling out of the hair have been attributed by Dr. Thin to growing organisms. The fibrillation of the hair is the result of atrophy and not of direct action. The hair-root is usually thin and pointed.

Von Schlegel discovered organisms especially in the hair-follicles and mostly in the hairs retaining their root-sheaths after epilation. We learn, then, from many observers that micro-organisms are pretty constantly present. Cultures, however, fail. Similar organisms are found upon the normal scalp. Cultures when inoculated produce only slight inflammation. If the disease is parasitic, parasiticides should cure it, while in fact they are not successful in controlling it. The disease is not contagious in the usual sense of the word. Experiments in inoculation are always negative, but too much stress must not be placed on this failure. The liability of the disease to disappear spontaneously interferes with the accurate observation of the effects of remedies. It may be that the failure of parasitic remedies is due to the disappearance of the organisms before the clinical aspects of the affec-

tion really appear, or very soon after the hair has fallen. He has found parasiticides of more benefit when employed early, and they are the most trustworthy means at our command at the present time. Dr. Robinson has been led to believe that the disease does not depend upon a micro-organism to be found upon the surface of the skin or in a half-follicle, and has been led to look for the cause in deeper parts. To be sure, alopecia has been produced by injury, and neuralgia frequently precedes or accompanies it—but the observations are too few. A general alopecia from shock should have more importance attached to it. Still there are clinical points against the neurotic theory. The author then described the appearances presented by microscopic sections which he had made deep into the tissues, at various stages of the disease. Skin taken from the scalp, on which an alopecia had existed for one week, showed normal epidermis, signs of inflammation in the corium round-cell collection in the sub-papillary layer, cellular infiltration of round-cells blood-vessels dilated, and small arteries contained fibrinous coagulum. The lymph-channels in the corium were enormously dilated and contained also a fibrinous coagulum. The sebaceous and sweat-glands were not affected.

Some hair shafts showed signs of splitting up and of malnutrition. There was a mild inflammatory condition of the sub-papillary corium, a falling out of the hair, which was replaced by lanugo. In this case the hair grew rapidly again. In a case which had lasted for six months, attributed by the patient to mental disturbances, the same changes were found, but greater ones in the papillary layer. The embryonic cell-collection was marked, and the coagulation distinct. In a case in which the alopecia had existed for several years, causing almost complete baldness, there was found atrophy of all the structures, excepting the vessel-walls. There was some atrophy of the fat-tissues, and only the remains of sebaceous glands were at times found. The hair-follicles showed signs of falling of the hair, there was atrophy of the papillæ, and inflammation, not particularly perifollicular. The inflammatory changes in these cases pointed to this as a direct cause of the loss of hair. In severe cases the secondary disappearance of the sebaceous glands occurs at times and the skin becomes thinner. There is a temporary narrowing of the blood-vessel lumen in all cases. The sudden falling of the hair would be explained by the thickening of the walls and coagula in the vessels supplying the affected area. The inflammatory changes leading to temporary or permanent

baldness is a disease of the corium and not of the hair-structures. Alopecia areata is not a hair-disease at all. The author could not consider the disease a trophoneurosis. And the view that it was a vaso-motor disturbance of central origin was not to be entertained, hence he looked for a local cause and found micro-organisms like those described by Von Lehlen. They were present in the lymph-spaces of the corium and sub-papillary layer, with some in the papillae, and also deep down in the corium. They consisted of cocci in masses, colonies, and lines, and in rows in the lymph-spaces. Diplococci were frequently seen. In the case of one week's duration micrococci were very abundant.

The question arises: Are they accidental or causative? A local agency is suggested: The spread of a patch; the development of new ones. The manner of spreading is cleared up by considering micro-organisms causative when we remember how they travel in the lymph-channels as in erysipelas. The slight or non-contagiousness is explained by their deep seat, as is also the frequent failure of parasitic remedies. Treatment must be by penetrating remedies, by internal ones. The soil must be rendered unfavorably by building up a run down subject, or the organisms must be killed directly. Remedies advised are sulphur, pyrogallol, mercury, chrysarobin, which latter is quite reliable. Croton-oil and remedies producing inflammation almost always control it.

In the discussion, Dr. Unna, of Hamburg, Germany, said that just as summer changes to winter and back again, so do the views upon the etiology of alopecia first favor the neurotic then the parasitic theory.

He himself might be said to hold both views. One must, however, have his mind directed to the possibility of a parasitic origin when one sees, as he has, a father and daughters in one family simultaneously affected. On the other hand, an alopecia following an injury to the scalp, as from a needle broken off in the tissues, rather favors the opposite view, and one must recognize a neurotic origin for cases of general alopecia following shock, etc. He could only offer his congratulations to Professor Robinson on the scrupulous original work which he had done and the admirable manner in which he had presented the result of his investigations. The two theories rise side by side, each having points of strength and weakness. He thought it would be a long time before either became the recognized one for all cases of alopecia areata. To prove the parasitic theory, isolation, cultivation, and transmission were necessary.

Dr. Ravogli, of Cincinnati, Ohio, said he had found small corpuscles resembling micro-organisms in the epidermis, around the hairs, and in the hair-follicles and hair-shaft. He related the case of a lady who complained of an itching in a circumscribed spot, shortly after which a spot of alopecia areata occurred at this point. He related the clinical histories of several other cases.

Dr. Knaggs related a case of general alopecia following a severe dental neuralgia. The perchloride of mercury, pilocarpine in large doses, the extraction of the teeth were without avail. Faradism finally resulted in a cure. After this the patient had marked anæsthesia of the whole body, especially of the scalp. A strong current was necessary to make him feel the application. Afterward he suffered intense agony when the electricity was given, even in weak current.

In other cases he had used twenty per cent. oleate of mercury with benefit.

Dr. J. Zeisler, of Chicago, Illinois, agreed with Dr. Unna, that it would take a long time to bring about a union of the two opinions regarding the cause of alopecia areata. We must admit the presence of micro-organisms when, as now, they after careful methods of staining, etc. Each one must form an opinion for himself, and this opinion is apt to be on the side to which the majority of his own cases appear to belong. He related two cases in which the neurotic origin appeared unmistakable. One was in a case of exophthalmic goitre (Basedow's disease), the other followed a stroke upon the head.

Professor H. J. Reynolds said he had favored the neurotic-origin, but we cannot question Professor Robinson's observations. The cause seems to have been shown by him to reside in the deep skin and the pathology established, but he is not convinced that a neurotic trouble may not give rise to the changes described. It is a question whether the organisms enter from without, or find their way to the locality of the patch from within the body.

He had never seen micro-organisms present. He suggested the use of a galvanic current to aid absorption of parasitocides. This he thought would show whether organisms were the cause of the disease if a cure was hastened.

Dr. Thin said it was evident that we now had a demonstration for the first time of micro-organisms in the deeper tissues of the skin in alopecia. He had come to the conclusion, many years ago, that a blooming fungus about the hair-roots was nothing more than epithelial structures. He had himself described micro-organisms in and around the hair-shafts. After his observations,

however for a time the theory of a trophoneurosis predominated.

Clinically, the patients are healthy, and present no cause for attributing the condition to a micro-organism. Since then aniline dyes have come in and Von Schlieu has shown a micro-organism. He wished to refute the idea that micro-organisms are present in all hairs.

If the surface of the scalp be disinfected and the epilating forceps scrupulously clean, none will be found in health. In alopecia they exist in numbers proportionate to the distance from the centre of the patch, few being found at the edges.

He did not think cultivations and reproduction necessary before we could accept the theory. We cannot expect mathematical demonstration in these matters. We accept other organisms as causative. No one doubts the trichophyton, still he is not aware that anyone has succeeded in reproducing ringworm from cultures.

The organism shown resembles the one he saw both in form and size, and he thinks Von Schlieu's organism the same. It is not found in the broked hairs, and he thinks the staining and washing washes out many of the organisms. Examination before staining shows minute bodies which have more or less disappeared after washing.

More or less hairs are swollen and ruptured; why should they be unless a force is exerted from their interior?

Professor Robinson's arguments appeal to gentlemen whose minds can accept micro-organisms, for lupus, tuberculosis, lepra, etc. The theory is gradually gaining ground.

Professor Robinson, in closing, said he was sorry more notice had not been taken in the discussion of the histological changes. Inoculation, if practiced, would lead us wrong if a negative result was obtained.

Cases following injury might be explained by our knowledge of the inoculation in osteomyelitis, the disease not showing itself until the bone has been injured. The existence of organisms in the lymph-spaces explains the disease to his mind, and he is as much convinced as he is that *trinea versicolor* is a parasitic disease.

SECTION ON CLIMATOLOGY AND DEMOGRAPHY.

FIFTH DAY.

The papers read in the section were: "The Demographic Effects of Introduced Diseases, and Especially Leprosy, upon the Hawaiian Races," by Dr. George W. Woods, surgeon,

United States Navy; "The Native Treatment of Disease in Syria," by Professor Thomas W. Kay, Syrian Protestant College, Beirut, Syria; "Demographic Consideration of the Evils of Artificial Methods of Preventing Fecundation and of Abortion in Modern Times, by Dr. Thomas M. Dolan, of Halifax, England.

The following is a summary of the paper by Doctor Woods:

Physically and mentally, the Hawaiians were considered superior to all other Polynesian races. They are described as tall, broad-chested, sinewy rather than muscular, with lively, expressive faces, noses slightly flat and often aquiline, mouth and lips large, splendid teeth, and with bodies tattooed. They were intelligent, energetic, kind, simple and hospitable.

Civilization represented, principally by the Anglo-Saxon race, to change or modify the ancient conditions and ways, to impress upon this peculiar people their laws, religion, manners, customs, languages, government, opinions and vices. Climate, soil and general environment remained the same. Hence the altered conditions in their habits and implanted germs of disease must be looked to for an explanation of the astonishing demographic changes which a century has wrought in the Hawaiian race.

The first effect of the contact with civilization was the inoculation of the race with syphilis, which spread so rapidly that it is now often declared that the great majority of the adult population is contaminated. Then came epidemics of scarlatina, rubeola, pertussis, influenza and variola, slaughtering thousands; and the native population, which a century ago had been estimated at four hundred thousand, was reduced to forty thousand in 1884. The extraordinary mortality had been attributed to cachectic conditions, venereal disease, poverty, bad food, licentious and vicious indulgences, including *ava*-drinking, opium-smoking, and excess in intoxicating liquors. Later, leprosy was introduced by the immigration of the Chinese. This disease was spread rapidly by the good nature, social tastes and hospitality; no fear of the disease, eating from the same dish, and passing the pipe or *ava*-cup from mouth to mouth; cohabiting with infected persons, and promiscuous and compulsory vaccination.

The first case of leprosy in a native was recognized in 1848. From the establishment of the leper asylum, on the island of Molokai, in 1865 to 1885, three thousand and seventy-six lepers were received, showing in a measure the great prevalence of this scourge. For the eradication of leprosy the following measures are recom-

mended: Segregation of the infected, cremation of the dead bodies and, so far as possible, all discharges, morbid and faecal, as well as the clothing and bedding, and proper disinfection of the walls, floors and utensils used by the living.

SECTION ON DENTAL AND ORAL SURGERY.

FIFTH DAY—MORNING SESSION.

A clinic was given by Dr. A. R. Starr, of New York, N. Y., in capping the exposed pulp of a tooth.

It is only of late years that any progress has been made in so treating and protecting an exposed tooth pulp so as to preserve its vitality. The operation caused the patient very little pain, and all those who have had the opportunity to see it agreed that it was a success.

Dr. William J. Younger, of San Francisco, California, implanted a tooth. Great diversity of opinion was expressed as to the ultimate result of this method of thus supplying the lost teeth.

Dr. R. B. Adair, of Gainesville, Georgia, completed the treatment of a case of pyorrhœa alveolaris.

Other gentlemen gave clinics on filling teeth and constructing artificial dentures.

Professor F. Busch, of Berlin, Germany, read a paper on

THE COMPARATIVE PATHOLOGY OF THE TEETH, WITH SPECIAL REFERENCE TO THE TUSK OF THE ELEPHANT.

A number of specimens were shown by the doctor to illustrate his paper. At the close of his paper the doctor exhibited an instrument for removing the small birth-marks so often found on the face. The instruments have a circular cutting edge ranging in size from one-fourth to half an inch in diameter, and fit into the dental engine. The mode of operation consists in selecting a knife the size of the mark to be removed, and placing it upon it, quickly revolving it. It will take only a moment to accomplish this, and is said to be almost painless. The only dressing he applies is dry cotton, which he leaves in position for from six to eight days, at the end of which time the part is healed.

Dr. E. Andrieu, Paris, France, read a paper on

THE SIXTH YEAR MOLAR.

He held that the six year molar being in development, eruption, and structure an organ of transmission from the temporary to the permanent set, it should be extracted when the permanent teeth are in position. More room is gained by

this procedure, and a longer period of usefulness insured to those remaining.

Dr. L. D. Sheperd, of Boston, Massachusetts, expressed his regret that such sentiments should still be prevailing among the profession. He cited cases from practice, when the extracation of these teeth caused not alone loss of valuable masticating surface, but actual irregularity of the ones remaining.

Dr. Paul Dubois, of Paris, France, stated that he wished the Section to note that the ideas expressed in the paper were not carried out by the dentists in France.

Professor Frank Abbott, of New York, could see no difference in structure between the six year molar and the other permanent teeth under the microscope, but a very marked difference was apparent between that and the temporary teeth.

A paper by Dr. Th. David, of Paris, France, on "Aphthous Stomatitis," was read by title.

Professor J. S. Marshall, of Chicago, Illinois, read a paper on

OPERATION FOR THE CURE OF A PERSISTENT NEURALGIA OF BOTH TEMPORO-MAXILLARY ARTICULATIONS, AND REFLECTED PAIN IN THE RIGHT BRACHIAL PLEXUS.

History.—Patient, female, forty-two years of age, was operated on some eight years before for the removal of an osteo-sarcoma of the right inferior maxilla. Extensive suppuration followed, and the wound did not heal for several months. Considerable cicatricial tissue was formed, and the jaw displaced to a considerable extent. Neuralgia dated from the healing of the wound, and the conclusion arrived at was that the irregular position of the jaw was the cause. An operation for the relief of this condition was performed, and the neuralgia ceased. He described the steps of the operation.

A feature of the operation was the appliance used for holding the parts of the jaw in their normal position. This was secured by means of a gold rod screwed into the ramus and attached to the remaining, both on the right side, by a gold crown. This was worn by the patient with no inconvenience for over fifteen months.

Attempts were made to close the gap between the ends of the bone caused by the resection, by means of bone grafting, and which were partially successful, over one inch of new bone having been produced by the grafts, but perfect union was not secured.

Dr. W. H. Atkinson, of New York, N. Y., was requested to open the discussion. He complimented the author on the manner in which he had conducted the case, and expressed apprecia-

tion of the suggestions made in reference to bone-grafting and its possibilities. He had no word of adverse criticism, and the Section was honored in having such a paper presented.

The following papers were read by title: "Articulation of Artificial Yeeth," by Dr. H. L. Cruttenden, of Northfield, Minnesota; "Power in Dentistry," by W. St. George Elliot, M. D., of London, England; "Porcelain Filling," by Dr. E. C. Moore, of Detroit, Michigan.

Dr. Alton H. Thompson, of Topeka, Kansas, read a paper entitled

DOES FUNCTION CONTROL THE EVOLUTION OF STRUCTURE?

Some time since, Dr. C. N. Pierce discussed a subject similar to that at the head of this paper. After noticing the mechanical forces involved in and influencing the evolution of the teeth, he says: "Those cumulative forces are utilized through heredity, and while so potent in tooth evolution, exert a similar influence in the development and modification of all other structures and organs. All departments of biology recognize the fact that heredity, adaptation, and growth, being of special importance in the evolution of the organic body, must therefore be regarded as especially formative functions. Adaptation to environment might be called the ancestor of function, as function is of organization. Illustrations of modification of structure in response to function are very numerous, in which it is shown how an organ may be completely changed or a mere rudiment be fully developed by the demand for the performance of a function unknown before."

A century ago Lamarck laid down the following laws concerning the development of organic life, which we, with all our accumulated facts, can change but little. In his second law he said that, the production of a new organ in an animal body results from the supervention of a new want continuing to make itself felt, and a new movement which this want gives birth to and encourages. Third law: The development of organs and their force of action are constantly in ratio to the employment of those organs. Fourth law: All that has been acquired, laid down, or changed in the organization of the individual, in the course of this life, is commenced by generation and transmitted to new individuals which proceed from those which have undergone those changes." Altered wants lead to altered habits, which result in the formation of new organs, as well as in modification and growth of those previously existing.

In our study of the subject, we will confine our observations to that field in which we, as

dental and oral specialists, are most interested the teeth.

Everything is made for a purpose, and the purpose must precede the thing made for effecting the purpose. Nature plans her work as deliberately as man plans his actions. The means for accomplishing an end are not the cause of execution, but the effect. The organ is the effect, and function is the cause of structure. As food-selection is the cause of the function, so the function of the acquisition and preparation of food is thus the cause of the masticating apparatus.

If function is the cause and support of structure, if an organ develops or atrophies as it is used or disused, if the impulse of active employment dictates the evolution of parts and tissues in succeeding generations, if organs have been suppressed through disuse or remain in various forms as mere rudiments—their function have passed away—then, must the teeth of man be tending toward final and inevitable suppression.

If in the future of physical education there shall be found a place for education in the accomplishment of masticating food, then, may the teeth be improved and developed by exercise, as the muscles and lungs are improved and developed.

Owing to the time for adjournment having arrived, no discussion was had on this paper.

The President congratulated the members on the interest they had shown throughout the session, and hoped great good might come from this congress, both to the profession and their patients.

GENERAL SESSION.

SATURDAY, SEPTEMBER 10TH—SIXTH DAY—
FINAL SESSION.

The Congress was called to order by the President at 9.30 A. M.

The Secretary General reported resolutions from the Section in Climatology, concerning the establishing of a bureau of vital statistics; from the Section in Military and Naval Surgery and Medicine, with regard to the prohibition of the use of explosive balls in warfare; and from the Section in Public and International Hygiene, with reference to the necessity of teaching hygiene in the public schools.

Professor Graily Hewitt, of London, on the part of the foreign members, and after making a few preliminary remarks, in which he conveyed their grateful thanks for the attention which the Congress had received, and their high appreciation of the success which had attended its work, offered the following resolution:

Resolved, On the part of the foreign visitors and officers of the Congress, that we desire to convey to the President of the United States our best thanks for his presence at the ceremony of the inauguration of this Congress; that we desire to express to the Executive Committee of the Congress, particularly to Dr. Henry H. Smith, Dr. John B. Hamilton, Dr. A. Y. P. Garnett, Dr. Toner, and Dr. Arnold, our very high appreciation of the efforts they have made for the efficient organization, action, and a working of the Congress, which have resulted in so great a success, and that we would convey our warmest thanks to the citizens of Washington for the kind hospitality, both public and private, we have received during our pleasant visit to their beautiful city.

Dr. Martin, of Berlin, spoke in German, and expressed his thanks for the kindness that had been manifested to him and to the other foreign members of the Congress. He had come here with some doubt, but that had been all removed, and the great success would secure for it high rank among the medical congresses which had been held.

Dr. E. Landolt, of Paris, France, spoke in French, and said that he had been commissioned to express to the President of the United States their sentiments of profound gratitude.

The sanction given by President Cleveland to our Congress has given the greatest charm to our stay in this capital. Returning to our hearths we will preserve the most grateful and respectful remembrance of the President of the Republic,

and we say to the whole world that the United States, already so favored, possesses, above everything, a chief who directs them surely in the way of progress and prosperity.

Mr. Edmund Owen, of London, England, seconded the resolution presented by Mr. Hewitt, in a neat speech, which was received with ringing applause. When the history of this grand country is written we trust President Cleveland will have a niche in the temple of fame side by side with those great men, Lincoln and Garfield. When you are in our country we love to hear you say, "We admire your Queen." We can say to you with all truth, we admire, we love your Queen of beauty and of grace, and in seconding this vote of thanks we simply express a prayer that Mr. President Cleveland and Mrs. Cleveland may long continue in strength and health to preside over a happy, a prosperous, and united country.

The Secretary-General, Dr. John B. Hamilton, returned his warmest thanks, especially to the foreign members, who had contributed by their presence, their writings, and their kind words to the success of the Congress.

The President of the Congress, Professor N. S. Davis in the name of the medical profession of the United States, thanked the foreign members for their sympathy and their assistance in the work of the Congress, in which representatives from every State in the Union had been present to greet them, and then declared the Ninth International Medical Congress adjourned.

TWELFTH BIENNIAL MEETING OF THE ITALIAN MEDICAL ASSOCIATION.

The twelfth biennial meeting of the Italian Medical Association was inaugurated Monday, September 19th, in the Aula Magna of the University building at Pavia. His Majesty, the King, the Ministers of Public Instruction and of the Interior were respectively represented. Professor C. Golgi, President of the Executive Committee, welcomed the members present in a fitting manner. The mayor of Pavia, Professor Fedeli, Professor Bizzozero and others made addresses.

The meeting was divided into ten sections:

1. Medicine.
2. Surgery.
3. Hygiene.
4. Medical Jurisprudence, Neuro-pathology and Mental Diseases.
5. Obstetrics, Gynæcology and Diseases of Children.
6. Dermo-pathology, and Venereal Diseases.
7. Ophthalmology and Otolary.
8. Anatomy, Physiology and Pathology.
9. Chemistry and Pharmacy.
10. Veterinary Medicine.

SECTION ON MEDICINE.

Professor A. Riva was elected President; Professor Moragliano and Bozzolo, Honorary Presidents; Professor Rumino and Viziali, Vice-Presidents; and Doctors Balp and Cattanes, as Secretaries.

Professor Viziali read a paper "On Pneumonia," sent by Professor Tommasi, of Naples. The author believes that pneumonia is not always identical in nature and cause. He reminds us that he first condemned bleeding as injurious, and claimed that it frequently increased the mortality, and that in 1867 he introduced the therapeutical method of alcoholics with great benefit. They strengthen the cardiac systole.

Professor Golgi said that by his experiments he is led to believe that there is no such thing as malarial pneumonia, for he has never been able to find the characteristic alterations in the blood.

Professor Bozzolo believes that the primary pneumonia is due to only one cause, viz., the diplococcus of Franckel.

Professor Moragliano agrees with Bozzolo, and

believes that many pneumonias, so-called malarial, are not so at all.

Professor Bozzolo spoke on "A New and Important Diagnostic Sign of Aneurisms of the Thoracic Aorta," inferred from the modifications of the negative pulse of the thorax in these cases.

Dr. C. Fossati read a paper on "Abdominal Oncology," and showed the "diagnostic difficulties" which may be encountered in some cases. In one of his cases there was a congenital pubic sac which communicated by four short ureters with the internal side of the left kidney, lowered and carried toward the middle; the patient died of peritonitis with extravasation of bloody urine from a rupture of the capsule. He exhibited the specimen.

Dr. C. Pavesi spoke "On the Passage of Anti-febrin in the Urine." He concluded that the remedy in therapeutic doses does not pass unaltered in the urine.

Dr. A. Rovighi reported "Some Observations in the use of Strophanthus in Heart Diseases." He found it but little effective, although given in large doses (in some most grave cases), while digitalis and caffeine produced better effect.

Professor Bozzolo had had better results in his clinique; it is inferior to digitalis, but we must not forget that this is often not tolerated long by the heart and stomach.

Professor Bozzolo presented a girl affected with "myxœdema." He thought the case most interesting in having the affection localized at the head and the intelligence well preserved.

Professors Raymond, Rivi and Rummo discussed the subject and commented on the case.

Dr. G. Mya reported some clinical cases and researches, from which he concluded that the finding of urobilin in the vomited matters has a real importance in the diagnosis of the seat of intestinal occlusions.

Professor G. B. Gueirolo spoke on the "Genesis of the Vesicular Murmur," according to the results of some of his experiments made on a patient from whom the larynx had been extirpated. He concluded that the origin of the respiratory vesicular murmur must be below the two great bronchial tubes.

Dr. B. Silva, "On the Diuretic Action of Calomel." Many are the causes: Increased activity of the liver in the production of glycogen and

urea; dilatation of renal vessels; irritation of the cells of the canaliculi by the direct action of the mercury, and also by that of the increased urea, inasmuch that by continuing too long the experiments, in dogs, we can cause a glomerulo-nephritis; calomel, therefore, is contraindicated in nephritis.

Dr. Brugnattelli found the remedy efficacious as a diuretic in heart diseases, not in nephritis.

Professor E. Moragliano spoke "On the Disturbances of the Portal Circulation in Interstitial Hepatitis in Relation to Ascites and to the Mechanical Disturbance in the Field of the Systemic Circulation." Frequently in cirrhosis of the liver we find ascites in the last stages, although there be existing for some time an alteration of the intra-hepatic circulation; frequently, therefore, the dropsy is due to a disturbance of the general circulation, rather than the local.

Professor Bozzolo asked: "Can it not be due to a local alteration (chronic peritonitis)?"

Professor Moragliano never found such alterations in his cases.

Professor Silvestrini said that the ascites could be easily explained by studying the peritoneal membrane, and especially the lymphatics of the peritoneum, which he always had found altered in his cases.

Professor Guelrolo presented a communication "On the Oedema of Patients Affected with Interstitial Hepatitis." The cause of external oedema in dropsy is the cardiac affection.

Dr. Trovati read a report of some of his "Experimental Researches on the Action of some Remedies on the Pulmonary Circulation." He concluded that ergotin, the extracts of *hydrastis canadensis* and of *hamamelis virginica* contract the vessels.

Professor Bozzolo presented a paper "On the Etiology of Pneumonia." He reported fifteen cases of croupous pneumonia, in which he had only found the diplococcus of Franckel. He believed the question yet unsolved.

Professor Silvestrini mentioned three cases of pneumonia complicated with cerebro spinal meningitis; which he thought to be due to a diffusion of Franckel's diplococci through the nerves, rather than to a new infection.

Dr. Balestreri spoke at length on "The Rheumatic Origin of Pneumonia."

Dr. R. Massolongo, of Verona, spoke on the "Etiology and Pathogenesis of Acute Broncho-Pneumonia." He maintained, as in 1855, that in general primary and secondary acute broncho-pneumonia is due to the same causes which generate the classic pneumonia: all the varieties

depend upon the different conditions of the organism, and from the different virulence of the cause of pneumonia.

Professor Bozzolo, notwithstanding the results of Massolongo, persisted in believing that the primary pneumonia is due only to a morbid agent (Franckel diplococcus), and has no relation to the secondary pneumonia.

Massolongo believed that many cases of pneumonia, thought to be secondary, are primary, occurring in lungs much enfeebled by disease.

Professor Foa said that the possibility of a specific broncho-pneumonia is shown in the typhoid pneumonia, in which he found only the Eberth bacillus and never the Franckel diplococcus. He spoke at length on the pathological anatomy of broncho-pneumonia.

Dr. G. Rummo, of Naples, reported the result of his studies on the "Comparative Physiological action and Mechanism of Remedies acting chiefly on the Heart. Experimental researches." He used digitalis and digitaline, strophantus and strophantine, upas antiar, helleborine, erythrophleine, oleander, spartein, caffeine, adoninidine, convallarinine—strophantine, helleborine, digitaline, erythrophleine, upas antiar, and the oleander act on the myocardium; adonine and the convallarinine act both on the myocardium and on the cardiac innervation; while spartein and especially caffeine act above all on the cardiac innervation.

Professor A. DeGiovannin, of Padua, entertained the members on "The Diagnosis of Arteritis." It can be made from the beginning of the alteration, for this is sustained by the alteration of the vasovasorum; there are therefore vasomotor alterations, which must be distinguished from the reflex vasomotor alterations.

Dr. A. Boccolari presented "A New Writing Sphygmomanometer" which would eliminate the inconveniences of Basch's instrument.

Professor Bozzolo presented a paper on "Diabetic Albuminuria." The renal alterations are due to the acetonuria and diaceturia.

Dr. J. Masini spoke on "The Motor Cortical Center of the Larynx." On the cerebral cortex of the anterior hemispheres he found the center which presides over the movements of the glottis. The lesions of this center give symptoms of glottic paralysis.

Dr. C. Pavesi read a paper on "The Oscillations of the Weight of the Body in Pneumonia and in Typhoid Fever." When the temperature rises abnormally, the weight of the body does not diminish, for the water is retained; but when the temperature runs down the weight is less,

for with apyrexia we have a facility of elimination of the retained water.

These results are confirmed by Cantani.

Dr. O. Moretti, of Rome, read a paper "On Multiplex Paramyoclonus." He studied 19 cases. In two of these, and those were important, for in one (15 years) the muscles of the vegetative life were involved, and in the other (a man 55 years old), the co-ordinated movements only controlled the contractions in the inferior limbs. He showed the inhibitory power of the will in controlling the spasm.

Dr. Petrilli expressed his opinion on "Vaccination as a Curative Method during the Attacks of Small-Pox." It can also be done during an epidemic of small pox; it may abort the disease in individuals who have already shown prodromic symptoms.

Dr. G. C. Ampugnani, of Genoa, reported his "Experimental Researches on the Fever of Typhoid Patients and Pneumonia."

Professor Queirolo spoke on "Movable Dulness Sound of the Abdomen" in physiological conditions.

Professor Moragliano and Dr. Lussone presented a paper on "The Reflex Movements of the Vessels in Healthy and Febrile Individuals."

Professor A. Cantani, of Naples, spoke on "A New Form of Infective Pneumonia." It is characterized by broncho-pneumonia, preceded by a diffused bronchitis with remittent fever, with marked emaciation, and engorgement of the spleen. It is contagious, and is a primary affection of the bronchial tubes which spreads to the lower portion of the lungs, and to the trachea, larynx and pharynx; the blood must also be infected, for the spleen is much enlarged. It is probably due to a streptococcus.

Bozzolo and Cardarelli had both seen a case.

Professor A. Cardarelli spoke on "The Neuro-pathic Origin of Dupuytren Contraction." (Palmer.)

Professor A. DeGiovanni read the following papers: "Asphyxia of the Extremities," "Infantile Cirrhoels."

Professor E. DeRenzi on "The Ætiology of Pleurisy." He has experimentally reproduced pleurisy with the pneumonic virus. Primary pleurisy is not always tubercular.

The same author spoke on "The Treatment of Tuberculosis." The inhalations of sulphuretted hydrogen (H₂S) make respiration easier and deep—creosote given in full doses lessens the secretions of the bronchial tubes of the cavities, and the cough, and improves the organism. Carbonic acid gas has almost no action. The alkaline treatment improves digestion and the gen-

eral condition. Iodine and iodoform have given him the best results.

Dr. A. Dal Fabbro read a paper entitled "Is Exudative Pleuritis always Tubercular?"

Dr. Bertolero spoke on "The Treatment of Tuberculosis with Aniline." He has obtained good results. One must be careful to avoid effects of intoxication.

Professor A. Riva, of Pavia, said that he had lately tried the parenchymatous injection, with a suitable apparatus, of chloral-camphor, obtaining excellent results.

Professor Sorman made many experiments and found that terpinol, sulphuric ether, antipyrin, iodol, hydroxylamine, etc., have no effect. Chloral-camphor, tribromo-phenol are of much value in the treatment of tuberculosis.

Dr. Paoletti, of Perugia, spoke on "The Action of Alum in Typhoid Fever." He had given the remedy internally in sixty cases, and all recovered. Dose: $\frac{1}{2}$ to 5 grammes daily.

Dr. Rainald presented a paper on "Hysterical Uræmia," with the history of a case.

Dr. F. Tajl spoke on "Diphtheria and its Treatment with Resorcin." He obtained thirty-four cures in thirty-six cases. He used it locally as a spray.

Dr. F. Zinfiré presented a paper entitled "The Epidemic Continued Fevers, Observed in Different Parts of Italy since 1872."

Dr. Magnani, read a paper on "Malarial Orchitis" cured with quinine.

Dr. Palese very greatly interested the society on "The Ictero-Hæmaturic Fever from Quinine Intoxication," mentioning many cases so affected by excessive doses of quinine.

Dr. Trombleri presented a paper on "The Treatment and Prophylaxis of Pertussis."

SECTION ON SURGERY.

Professor E. Bottini, was unanimously elected President of the section; Professors Ceci and Ferrari, as Vice-Presidents; Professor Salomoni and Dr. D. Paolia, as secretaries.

Professor Bassini, of Padua, read a paper on "The Radical Cure of Inguinal Hernia." He described his new process, which consists in reconstructing physiologically the inguinal canal. He gave statistics of 72 operations, and concluded that the new operation is harmless, rapid and effective.

Professor Novaro, of Bienna, reported two cases as "A Contribution to the Surgery of the Stomach." The first patient was a girl 18 years old, upon whom he performed resection of the pylorus, for the relief of a cicatricial stenosis from an ulcer; she completely recovered in 29

days. The second case, also of cicatricial stenosis, was subjected to gastro-enterotomy; the patient died in two months from peritonitis, caused by an attempt to treat an intestinal fistula which had developed. He also reported his process of "Transplantation of the Ureters in the Rectum," successfully performed by him in the dog. The indications of this operation in man, are: 1st, malignant tumors in which resection is impossible; 2d, uretero-abdominal fistulae.

Professor Bassini read a paper on the "Osteo Plastic Resection of the Nose," for the removal of a returning nasal polypus, according to a new process of his, a modification of that of Langenbeck. The tumor is easily reached, and the bone is not detached from the soft parts of the nose and cheek.

Professor Petronis, of Naples, spoke on "The Pneumatic Medication of Wounds."

Dr. De Paoli, of Turin, presented a paper on "The Microbes of Altered Urine in the Genesis of Urinous Abscesses of Urethral Fever." He found micrococci (diplo and strepto cocci) and bacilli.

Professor Loreta, of Boulogne, sent a communication, relating a case of "Resection of the Left Lobe of the Liver, Infiltrated with Echinococci Cysts." He also related four operations of "radical cure of inguinal hernia, according to Bassini's method," with immediate good results.

Dr. Rota, of Turin, reported a case of a boy 5 years old, affected with chronic emphysema, relieved by performing "Estlander's Operation" modified with a thoraco-plastic process.

Dr. Carle, spoke on the same operation for the relief of empyema.

Professor Tassi, of Rome, spoke on "Perineal Cystotomy," and Professor Roth, on "Suprapubic Cystotomy."

Professor Ferrari, of Parma, read a paper on "Experimental Researches on the Wounds of Arteries, and on the Sounds Heard in Them." His results differ from those of Wahl and Dürma.

Dr. Petrilli presented a probe-blistoury for anal fistula which was favorably received.

Drs. Costa and Roth each reported a case of echinococcus of the liver successfully treated.

Dr. Paggi, of Boulogne, reported: I. "An extirpation of the whole superior limb, together with the clavicle and scapula for the relief of a fibro-sarcoma," originating from the scapula, followed with good result, in a man 27 years old.— II. "A Disarticulation of the Femur," with an anterior flap, for the relief of an osteo-sarcoma of the femur, in a girl 17 years old, with recovery.—

III. "A Resection of Knee Joint," according to Durante's method.

Professor Tassi spoke on "Fungoid Synovitis."

Professor Ferrari communicated the results of 32 tracheotomies in cases of diphtheria, with 14 recoveries and 18 deaths.

Dr. Bergonzini spoke on "The Antiseptic Power of Iodoform," which he thought very feeble.

Dr. Falleroni, of Rome, spoke on "Osteoclasy" and showed Robin's apparatus.

Dr. Lampenonani, of Turin, made known his results on "The Surgery of the Hip Joint." He spoke at length on hip-joint disease, its symptoms and pathology and gave his treatment in 13 cases.

Professor Ceci reported on "The Experimental Researches in Operations on the Bones."

Professor Tausini, of Lodi, presented a case of "Resection of the Stomach and Pylorus," followed with success. He presented the patient and the specimen. He spoke at length on the diagnosis and operative technique.

Dr. Guarmeri, of Lucca, presented the history of a case of "Circular Resection of the Intestine," with recovery.

Dr. De Paolis reported 12 cases of partial removal of the thyroid gland.

SECTION ON HYGIENE AND HYDROLOGY.

Professor Sormani, President; Professor Morselli, Vice-President; and Dr. Campani, Secretary.

Dr. Nosotte read a paper on "The Transmission of Tuberculosis from Animals to Man." He concluded that tuberculosis is not transmitted by the digestive tract unless there be a solution of continuity.

Dr. Pratolongo spoke on "Vaccination."

Dr. Vinai read a paper on "The Hydrotherapy of Nervous Diseases."

Dr. Cozzolino reported his studies on the diffusion of diphtheria. Corrosive sublimate is the best disinfectant.

Dr. Morsalli read a paper on "The Examination of Drinking Waters."

Dr. Marchisio proved the efficacy of the thermal treatment in acute and sub-acute articular rheumatism, especially if associated with the salicylate of soda.

Dr. Burgonzio spoke on "The Technique of the Bath."

Dr. Ricchi found that arsenic was the best prophylactic of malaria.

Dr. Perroncito spoke on "The Biology of Thermal Waters." He found no micro-organisms in

water coming from rocks, but did find them in water coming through earth.

Dr. Morselli presented a report of his studies on the hydro-electric bath. It benefits by the psychical impression which it produces.

Dr. Bordoni-Uffreduzzi found micro organisms of all kinds in ice.

Many other papers were presented in regard to the therapeutical indication of the different mineral and thermal waters of the state. All were freely discussed.

SECTION ON MEDICAL JURISPRUDENCE, NEUROPATHOLOGY AND PSYCHI- ATRY.

Dr. A. Raggi, President; Dr. F. Vizioli, Vice-President.

Professor F. Vizioli read a paper on "The Facial Trophoneurosis." Fifty cases are so far on record. He had two cases, and believed it to be due to a trophic alteration of bulbar origin. He does not believe that the disease is caused by any lesion of Gasser's ganglion, as now believed.

Dr. Frigerio had a contribution on "The Seat of the Sense of Smell."

Professor A. Verga sent a paper on "Acrophobia," which means an aversion to height.

Dr. Marro read a paper on "The Alimentation of Insane Patients."

Dr. Raimondi related two cases of traumatic rupture of the heart.

Dr. Algeri mentioned a case of epilepsy of traumatic cause in an insane patient, treated with success by trepanning the skull.

Dr. Gasparini had a paper on "The Pathogenesis of Acute and Chronic Facial Neuralgia, and on the Method of Treatment with Galvanism."

Dr. Raimondi spoke on the biology and toxic action of the muriate of lupinine.

Dr. Raggi read a paper on his "New Studies on Hypnotism," in which he advocated strongly the theory of polarization.

Dr. Stefanini presented two patients cured by the hypnotic suggestion. The first was a girl 14 years old, affected with hystero-epileptic convulsions, with contractions of the right upper and lower limbs—hemianesthesia, blindness and deafness of the corresponding side. In three months the patient fully recovered with the hypnotic suggestion. The second was a woman 32 years old, hystero-epileptic. Her recovery was also completed by using the hypnotic suggestion. Both patients were hypnotized before the members of the section.

Dr. R. Rainaldi presented a hystero-epileptic patient in a state of absolute lethargy. This

patient was subjected to some very interesting experiments. The state of ecstasy and catalepsy were beautifully shown.

Dr. Bianchi had a paper on "The Nature of Pulmonary Lesions in Paralytic Patients." Two-thirds of these patients die of pneumonia. In 11 cases he found, besides the pulmonary lesions, degeneration of the pneumogastric nerves at their peripheral branches.

Dr. G. Rezzonico read a paper on "Observations of Pathological Anatomy in the Progressive Paralysis of the Insane."

Professor Tambroni mentioned a case of paralytic dementia in a patient affected with progressive paralysis.

Dr. Sighicelli spoke on the treatment of epilepsy with the galvanic current.

Dr. Bergonzini presented an interesting collection of skulls of criminal patients.

SECTION ON OBSTETRICS, GYNÆCOLOGY AND DISEASES OF CHILDREN.

Professor Cuzzi, President; Dr. De Cristoforis and Professor Macari, Vice-Presidents; Dr. Bossi, Secretary.

Professor Macari read a paper on "The Fœtal Head," demonstrating the importance of the study of this element in the mechanism of labor.

He also spoke on "Obstetrical Craziness," showing how many obstetricians at times make great mistakes by getting too much excited by the slight difficulties which the clinical case may sometimes show.

Professor Paladiso sent a paper on "The Destruction and Renewal of the Ovarian Parenchyma in the Mammiferous."

Dr. F. Candia, of Naples, reported a case of supravaginal amputation of the uterus for the relief of a myoma, performed according to Schröder's method.

Dr. H. Pinzoni spoke on "The Influence of Ergot on the Phenomena of the Puerperium." He concluded that ergot given during a physiological puerperium has no effect on the temperature; the frequency of the pulse is always increased, the urine is increased, due to a greater arterial blood pressure. Ergot has no effect on uterine involution, an opinion quite different from what we had always believed. The uterine after-pains become less. The milk secretion is impeded, being probably due to contractions of the vessels and to a less flow of blood to the gland; lastly, the influence of the remedy in puerperium is good, by preventing the retention of clots and their decomposition.

Professor Tibone always obtained good results by administering ergot in uterine involution.

Dr. Colucci, of Naples, read "A contribution to the Physio-pathology of Abortion." He found, in four cases, atrophy of the placental villi, which, by obliterating the blood vessels, diminishes the field of nutrition of the fœtus, and in consequence causes an abortion from the 10th to the 15th week.

Dr. Bordi presented a communication "On the Use of Jequirity in the Treatment of Chronic Metritis." From the beneficial effects of this remedy in ocular diseases, he thought to try it in chronic forms of metritis. He had used sterilized solutions which keep their activity, and made the injections with Braun's syringe. In the first 5 hours no reaction followed; then commencement of an acute metritis with fever (the highest 38.7° centigrade), with apyrexia on the third day. As local effects, he noticed first a fibrinous exudate which covered the os uteri; when this became eliminated the cure was complete. The author thought this remedy indicated in metritis granulosa in its second stage; the effect is not so good in the fungoid endometritis; is contraindicated when there is existing parametritis.

Drs. Clivio and Monti presented "A Contribution on the Ætiology of Puerperal Peritonitis." They found the disease was due to numerous and well known pyogenous micro-organisms, (streptococci) which is of great importance in obstetrical practice.

Professor Chiarleoni presented a communication "On Hysterism." He gave the history of a patient who, by a sudden fright, became affected with an hysterio-epilepsy, which grew worse in its convulsive and paralytic manifestations, and greatly endangered the life of the woman. He excluded any material lesion of the genital apparatus, and thinking of the many cases of hysteria cured by suggestion, he concluded that probably many of these patients who had undergone the operation of castration had sometimes recovered simply from the influence produced on the imagination of the woman. To remove doubt, Professor Chiarleoni proposed and performed a simulated operation; he fully chloroformed the patient, and then made only a slight incision of the abdominal walls. The result was complete; the patient left the clinic fully recovered; menstruation appeared again regularly, as it had ceased since the beginning of the sickness. Probably the amenorrhœa was due to a disturbed innervation of the internal genital organs; castration, therefore, could not have been proper in this case. By this cure, we may bring some doubts on the legitimacy of castration in nervous forms in general.

Professor Cuzzi is not yet convinced of the great advantages claimed for castration in the treatment of fibroids.

Dr. Pinzani spoke of "A Case of Incarceration of a Retroverted Uterus, at the Fourth Month of Pregnancy." The woman was a primipara. He thought the retroversion preceded pregnancy. All attempts at reduction having failed, and the patient being greatly exhausted and near to death, he punctured the uterus through the posterior fornix. Abortion followed, and the retroversion changed into retroflexion. The patient died from shock during puerperium. At the autopsy there was found: the bladder with thickened walls but with a normal mucous membrane, and the left kidney affected with nephritis. Drs. Calderini, Pasquali and Cuzzi discussed the case; and Dr. De Cristoforis reported a case of habitual abortion due to a retroflexion. By applying a pessary, the patient was brought to full term. The displacement was finally cured.

Dr. Accouci presented a new modification of Braun's cranioclast.

Professor Tibone presented "A Contribution to the Study of the Causes of Death of the Fœtus During Labor." He mentioned a cause little known, viz.: Deficient ossification of the cranial bones of the fœtus; hence compression transmitted to the brain, and also to the bulb through the cephalo-rachidian liquid. He does not advise version, but the preparation of the genital tract with the colpeurynter, and the cautious use of forceps.

Dr. Borde read a paper on "Endo-uterine Tamponing in Post-partum Hæmorrhages." In two cases he resorted to a tampon soaked in a solution of perchloride of iron; the hæmorrhage ceased and the puerperium was normal. It gives better results and is less dangerous than injections.

Dr. Candia said that an injection of water at a temperature of 50° centigr. was prompt in its action. He was also corroborated by Dr. De-Cristoforis.

Dr. Colucci read a paper on "The Glands of the Fallopian Tubes." He made several comparative studies on the oviduct of women, cats, rabbits and female bears; and found that in some animals the mucous membrane penetrating in the underlying layers gives rise to true glandular formations. (Muciparous glands.)

Dr. Pestalozza described his "New Operative Process in the Treatment of Cervicitis and of Parenchymatous Metritis." He does not approve of the use of caustics, and demonstrated the necessity of diligent ablation with the bistoury.

Dr. Candia spoke on his "Operative Radical

Cure of the Prolapse of Uterus and Vagina." He slightly modifies Martin's method.

Dr. Cuzzi usually used Hegar's method; he prefers Neugebauer's operation in women who have passed the menopause.

Professor Pasquali reported "A case of dermoid cyst treated with the caustic and with drainage."

He reported also two cases of chronic inversion of the uterus; the first, being irreducible, he removed the inverted portion; the patient died of septic peritonitis and re-inversion of the stump. The second case was treated with the colpeurynter, and it was reduced almost spontaneously on the 25th day. He attributed the inversion of the stump as well as the reduction with the colpeurynter to the action of the large ligaments."

Professor Inverardi read a paper on "The Study of the Mechanism of Labor."

Professor DeCristoforis gave a report of the "Night and day obstetrical guard of Milan." Gave its history and the good results obtained. In seven months there were made 1,319 visits at the homes of patients. He hoped that similar institutions may rise in every city for the benefit of the poor.

Dr. Cloja spoke on "Obstetrical Prophylaxis." On the basis of recent theories on puerperal fever, he showed the necessity of considering as infectious, and equal to other epidemic and contagious diseases especially in regard to sanitary laws and regulations.

In consideration of the importance of the subject, it was voted that it be a theme of general discussion at the next meeting.

Dr. Piazza read a paper on "The Convenience of the Diagnostic Puncture of Ovarian Cysts." The puncture may cause an intra-peritoneal spreading of the fluid; he also said that, as in the splenic pulp, there may happen reproduction by dissemination. He spoke of other dangers, and recommended to limit or to abandon the puncture of ovarian cysts, which is not indispensable for diagnosis.

Dr. Carborelli, of Messina, spoke on "The Cyphotico-rachitic Pelvis." He mentioned a case where cyphosis existed at the inferior strait, and rachitis at the superior.

Dr. E. Casati, of Rome, spoke of his "Modification of Alexander's operation," which consists of a transverse incision from one inguinal ring to the other. He sutures both ligaments to the pillars of the external inguinal ring, and lastly crosses on the pubes both segments previously shortened and sutures them on their external passage with the subcutaneous connective tissue,

which prevents the reproduction of the vitiated position. He performed this operation on a patient with a good result.

Dr. A. Guzzoni, of Pavia, explained his "New sign for the diagnosis of gemellar pregnancy." It consists in the limited fluctuation to one half of the uterus, after the rupture of one sac and the escape of its waters. He found it in three cases. He also noted an earlier disappearance and dilatation of the cervical canal in the last days of pregnancy.

Dr. M. DeCristoforis read a paper on "Massage of the Female Genital Organs."

Dr. L. M. Rosal read a paper on "Endo-uterine Injections." He does not fear the passage of liquids into the peritoneal cavity. He avoids uterine colic by using, before the injection, a solution of cocaine.

He also presented "two new forms of pessaries for the treatment of lateral displacements of the uterus." They are a modification of Hodge's pessary.

Dr. Bancolini reported "A case of osteomalacia in the province of Pavia." The case was very interesting, and especially because this province was always considered free from this affection.

He also spoke of two cases of threatened abortion from the administration of quinine.

Dr. Candia spoke on "Scooping of the uterine cavity in chronic hemorrhagic endometritis." He demonstrated its efficacy and reported six cases so treated by Martin's method; narcotics is not indispensable; he found good effects in the use of a 4% solution of cocaine.

Dr. Sangregorio read a paper on "Small-Pox and Pregnancy." In the years 1884-85-86 and in the first six months of 1887 he had had under his charge 72 cases of small pox during pregnancy. In 81 the pregnancy was interrupted and 26 women died. In these 72 cases seven were cases of varioloid, and all recovered; only one had her pregnancy interrupted; 40 were cases of moderate small-pox, three died and 10 had their pregnancy interrupted; 22 had confluent small-pox, 20 died and 17 had pregnancy interrupted before death; three had hemorrhagic small-pox, and all died after aborting.

SECTION OF DERMATOLOGY AND VENEREAL DISEASES.

Professor C. Manassei, President; Professors A. Scarenzio and G. Casarini, Vice-Presidents; Drs. Ciarrocchi and Mibelli, Secretaries.

Dr. R. Campana, of Genoa, read the first paper on "The Tuberculosis of the Skin and of the Mucous Membrane of the External Genital.

Organs." He mentioned three cases: one of verrucous tuberculosis of the hands, in which he found Koch's bacilli; another of ulceration of the genital organs, which he diagnosed as tubercular. He spoke of its importance, because of the possibility of contagion through venereal contact. He made inoculations in calves with material taken from the ulceration, and in nine days the animals died, and he found tubercular spots and partial peritonitis.

Prof. De Amicis, of Naples, reported four cases of fungoid mycosis of Alibert. He made a bacteriological examination with a special method of his own (gentian violet 8 c.c., aniline oil 8 c.c., alcohol 99 c.c., distilled water 80 grammes) and found a special micrococcus.

Dr. Scarenzio showed a patient affected with gumous syphilis of the nasal bones and palate, with perforation, treated successfully by a plastic operation.

Dr. D. Majocchi, of Parma, read a paper on "Dermo-actinomycosis." Described the form of the actinomyces, and the results of his studies on the spores of this fungus, on their extreme smallness and their resistance to the pressure of covering glasses and reagents. He said that the alcoholic solution of fuchsin is the best coloring agent of the fungus, and especially if it is undergoing a calcareous degeneration. He spoke of two cases of human actinomycosis observed by himself: the first had an anthracoid aspect with a rapid course; the second presented itself as fungous, ulcerous, similar to those forms once called scrofulous. He thought that the parasite enters the system by the mouth.

Other papers were presented and read, as follows:

"Marginal Tricophyton Tonsurans," by Prof. R. Campana.

"Pathology, pathogenesis, morphology and treatment of Lichen," by C. Manassa.

"Pathogenesis of Alopecia areata," by Prof. G. Behrend of Berlin.

"Salol and Iodoform in the local treatment of venereal and cutaneous diseases," by D. Barduzzi. He also read a paper on "Late Hereditary Syphilis."

"Universal exfoliative dermatitis from psoriasis;" "Pustulous eruptions of iodine origin;" "A case of universal lichen ruber," by Prof. T. DeAmicis.

"Herpes tonsurans maculosus et squamosus," by G. Peroni, of Turin.

"An ointment urethral injector in the treatment of chronic gonorrhoea;" "Treatment of Gonorrhoea," by P. Tommasoli, of Pesaro.

"Resorcin and epithelioma of the skin;" "On the abortion of syphilis by the cauterization of the

infecting ulcer with the thermo-cautery of Paquelin," by L. Mannino, of Palermo.

SECTION ON OPHTHALMOLOGY AND OTOTOLOGY.

Dr. N. Manfredi, President; C. Reymond, Vice-President; Guerenzili, secretary.

The following papers were read:

"Some Experiments on the Mydriatic Movements of the Pupil," by Dr. Verdesse.

"On the Antiseptic Power of Chloro-mercuriate of Cocaine," by Professor Tartuferi.

"The Histogenesis of the Retina and Optic Nerve," by Dr. F. Falchi, of Turin.

"On the Artificial Maturation of Cataract," by Dr. Denti.

"The Small Superior Flap modified in the operation of the Lenticular Cataract;" "The Disinfectants in the Conjunctival Granulations;" "Studies on the Micrococcus of Granulations," by Dr. Petrilli.

"The Hygiene of Sight," by U. Petrini.

"The Genesis of Myopia," by Dr. Ferri, of Novara.

Professor Cozzolino spoke at length on "The Intratympanic Surgery."

SECTION ON LARYNGOLOGY.

F. Massei, President, G. Loughi, Vice-President; I. Masini and V. Cozzolino, Secretaries.

Dr. Paladino reported a case of a stone lodged in the right bronchus, and extracted with a special instrument invented by himself. He showed the instrument (a bivalve speculum cannula) and was much praised for it.

Dr. E. Kruck read a paper on "The Adenoid Vegetations of the Naso-pharyngeal Cavity." He showed the instruments for the operation, and anatomical and microscopical specimens.

Professor Cozzolino reported several cases of oral psoriasis. He insisted that it is independent of syphilis, and that the use of the galvanocautery is the best treatment.

Dr. F. Massei spoke on "The Erysipelas of the Larynx."

Dr. G. Massini spoke on the treatment of hyperplastic laryngitis with scooping, galvanocautery and lactic acid. He favored the first.

Professor O. Massini reported a case of laryngeal cyst.

Dr. Ferreri spoke on the treatment of laryngeal polypi, with special scoops used in the clinic at Rome.

Dr. Massini reported "A case of hereditary syphilis of the skin, tongue, face, nose and ears with tracheal stenosis, cured."

All these papers were fully discussed by the members present.

SECTION ON ANATOMY, PHYSIOLOGY
AND PATHOLOGY.

G. Loja, President; P. Foa and G. Romiti, Vice-Presidents; Drs. Fusari and Monti, Secretaries.

Professor P. Foa, of Turin, spoke first on "Putrid Infection," mentioning his two clinical cases in which he found a bacillus which by its character was recognized as *Hauser's proteus vulgaris*. He reported several experiments made with it.

Professor G. Bizzozero reported his studies made with Dr. Vassale, "On the Tissues of Secreting Glands." They concluded that most glands of the adult body possess elements of great stability. The salivary and mammary glands also follow this general law; but during pregnancy numerous are the elements in the way of scission in the mammary glands, due to its preparation for the period of functional activity.

A. Marcacci read a paper on "The Action of Alkaloids on the Vegetable and Animal Kingdom." He found by experiments that quinine and cinchonanine are potent anti-fermentatives; that strychnine and morphine are almost indifferent, and that atropine and veratrine seem to excite some fermentations. A similar action is shown by these alkaloids on germination, on the development of roots and bulbs. The action of poisons is much different from that commonly believed.

G. B. Grassi spoke "On the Parasites of Man." He said that the *amœba coli* is not found exclusively in dysenteric patients, but also in individuals whose intestinal functions are normal. He doubted the living nature of Pfeiffer's *monocystis zosteri* and the *plasmodium malarie* of Marchiafava and Celli.

L. Tenchini, of Parma, reported "a case of congenital bilateral renal ectopia in an adult woman," and presented the specimens. He found both kidneys in the pelvis. The patient was well formed and never had any disturbance during life, but could never bring pregnancy to full term. The kidneys resting on the small pelvis impeded the distention of the gravid uterus.

P. M. Gluri also reported "a case of ectopia of the left kidney."

Drs. Martinotti and Sperino reported their histological researches on a *diprosopus tetrophthalmus* pertaining to the human species which lived a few hours. It had two oral openings, two noses, four eyes, four cerebral hemispheres, a cerebellum, one pons and a spinal column. They thought probably due to a fusion of two embryos.

F. Tartuferi spoke on "The Minute Structure of the Retina."

A. Bonome spoke on "The Etiology of Tetanus." He had studied many cases of tetanus, and reported many experiments which he had made. He thought that the cause was the spindle form bacilli, found in large numbers.

Professor Herzen, of Geneva, spoke on "The Exhaustion of Nerves." His experiments differ from those of Vedenski and Bowditch. He concluded that the exhausted part is not the muscle, but the nerve.

G. Fano, of Genoa, spoke on "The Electric Rhythm of the Heart."

L. Vincenzi reported several experiments with cholera.

Dr. Oddi, of Perugia, read a paper on "Cholecysto-gastric Fistula." He performed it in eight dogs. None had the digestion disturbed. The examination of the gastric contents made during different periods of digestion always showed the presence of bile, acid reaction and a normal quantity of peptones.

These results were confirmed by Herzen.

Dr. Oddi also reported another important experiment. He removed the gall bladders from dogs, and a little time after he noticed that the hepatic, cystic and choledocus ducts were much dilated. He discovered that at the opening of the choledocus in the intestine there existed a true sphincter.

Dr. Tizzoni reported his experiments on "The physio-pathology of the suprarenal capsules." By extirpating the suprarenal capsules in rabbits he found an increased pigmentation of the lips and tongue.

E. Marchiafava, of Rome, spoke on "Malaria."

Professor P. Foa, spoke on "The Structure of the Red Blood Globules." Having used several methods of straining, and having dried the blood at different degrees of heat, he detected a reticulum, the network of which was attached toward the center to a little ring encircling a space containing a little body which he considered as a residuum of the nucleus. Lastly, an hyaloid layer at the periphery; under this a layer of hæmoglobin, then a reticular layer, and lastly the protoplasm.

Drs. Foa and Bordonì Uffreduzzi reported their studies on "The Etiology of Cerebro-Spinal Meningitis." According to them, the meningococcus is the same which Steinberg cultivated from saliva, and Franckel as *diplococcus pneumoniae*. It is a constant cause of cerebro-spinal meningitis, while it is not the only cause of pneumonia.

Dr. G. Mingazzini, of Rome, spoke on "Anatom

ical Observations on Brains of Criminals." He concluded that we cannot yet establish a special type of brains of delinquents.

Dr. Bonome spoke on "Pulmonary Lepa." Although this affection has been denied by recent writers, the speaker found it in a patient affected with chronic broncho-pneumonia. By using Ehrlich's and Unna's methods he found the Hausen's bacilli.

Professor Foa confirmed Dr. Bonome's observation, and Dr. Bordoni Uffreduzzi spoke at length on these bacilli.

Dr. A. Di Vestea spoke on "The Transmission of Hydrophobia through the Nerves." By inoculating rabbits according to Pasteur's method, he found that the medulla oblongata became virulent before the spinal chord. In the first stage he found that the rabbits had a characteristic elevation of temperature, and with the lowering of the temperature there was a paralysis of the posterior brain. By inoculating the sciatic nerve the lumbar medulla became virulent first. He related many other experiments tending to show the nervous theory of rabies.

Dr. V. Gianturlo, followed next on "Histological Researches on Hydrophobia." He reported an autopsy in which he found an infiltration of the ependyma and of the perivascular lymphatic spaces of the nervous centers. He thought, therefore, that hydrophobia has characteristic lesions in the vessels. The nervous alteration would be secondary and only degenerative.

Dr. C. Bareggi, of Milan, read an elaborate paper on "The Bacteriological Examination of the Blood as a Rational Basis of Pasteur's Treatment." He claimed to have discovered in the blood of bitten patients a special micro-organism, which enabled him to diagnosticate the amount of infection of each patient.

Dr. T. Zasselein spoke on "Bacteriological Researches in Cholera."

Miss Dr. G. Cattani read a paper on "The Influence of Cold on the Spirocetes of Cholera." She studied the resistance of cultures buried under snow, and found that the komma-bacilli lived, but modified slightly their biological properties.

Several other papers were read and discussed.

For brevity's sake I shall not report the transactions in the section of Pharmacy and Chemistry and of Veterinary Medicine. Some papers read in the latter section were of unusual interest.

LECTURES.

To make the meeting of the association more interesting, several lectures were delivered before all the members in the large amphitheatre of

the university. As I desire not to use too much space in your valuable journal, I shall only attempt to give a brief summary of two or three of them, which were delivered by the most eminent clinicians and specialists of Italy.

In the afternoon of September 19, Professor Henry Morselli, of Turin, a great authority on psychology, delivered his lecture on "THE Mental Pathology, its Present and Future Status."

The aim of the lecturer was to defend psychiatry from the charge of some physicians, that it occupied itself with abstracted studies, by studying particularly the psychical phenomena, and neglecting the positive study of the brain and its alterations in insanity. Professor Morselli demonstrated that the historical evolution of psychiatry has to carry this discipline to the research of its diagnostic elements or criteria, more sure and characteristic, and these are constituted by the alterations, anomalies, changes and deficiency of the mental functions. He said that as we had received from Griesinger the first impulse to the neurological study, so we had to receive from Morel and Maudsley the impulse to the study of experimental psychology. He demonstrated how different the present psychology is from the old, and that it possesses the methods, intents and characters of a positive and experimental science, as all others have. The charge that psychiatry makes too much philosophy because it treats psychopathic phenomena, is founded upon the error of still confounding the old with the new psychology, and of considering every psychological research as a metaphysical play. Truly, in the future, the aim of psychiatry must be to harmonize the two tendencies, the somatic and the psychological. Professor Morselli cannot accept the other charge that psychiatry is out of the way, and detaches itself from medical teachings because it has not found the equation between brain and thought. The lecturer mentioned the imperfections of neurology, its errors, and its uncertainties about the structure and functions of the nervous system, for which psychiatry is not responsible.

The idea that every mental disturbance has an organic fundament is correct, but not in the sense given by the anatomo-pathologists of the classic histological school. We cannot suppose that delirium, fixed ideas, and the disorders of sentiment have as equivalents the great alterations of the nervous centers accessible to our means of research. We shall have to resort to micro-chemistry, to micro-physics, and to molecular micro-mechanics. The teachings of

Brown-Sequard on inhibition and dynamogeny can throw much light on this field.

The attempts to join psychiatry with neurology have not given good results. The lecturer showed the faults and imaginations of Luys' scheme, and the imperfections of Meynert's—both of an anatomical kind. He also showed the novelty and the temerity of Arndt's scheme of a physiological basis.

The claim that psychiatry has not given any benefits, is an error and an almost offensive forgetfulness. We owe the doctrine of the anthropological foundation of insanity to psychiatry, especially the Italian, to Lombroso and his school. The lecturer mentioned at length the progress of psychiatry in the last fifteen years, such as the teachings of morbid heredity and its consequences; the degeneration applied to congenital forms of insanity, and the genesis and nature of delirium. He mentioned the studies on insanities or constitutional anomalies of the mind in the relation between psychosis and neurosis; between epilepsy, moral insanity and delinquency; on the influence of biological periods of life and of critical epochs; and on the modifying action of the historical ambient. He also cited the researches on the fundamental lesions of the sentiment; on perceptions, and on the psychometry; on the relation of suicide and insanity; on the pathogenesis of pellagra; on that of progressive paralysis and on the distinction of typical paralytic forms of pseudo-paralysis. He spoke of the applications of these studies to moral science, demonstrating how psychiatry is the natural tie between the medical and social sciences. He closed by describing psychiatry as a curative art, and the enormous progress of the last twenty years in the technique of insane asylums.

On the afternoon of September 20th, Professor E. Maragliano, of Genoa, gave his lecture on "The Climatic Treatment of Phthisis." He showed that purity of air is the most important factor in the treatment of phthisis. The best climate is that of the mountain, for its pure air, low pressure and low temperature. But if the disease has a rapid course, the mountain is to be avoided.

Professor E. Bottini, of Pavia, delivered an important lecture on "The Treatment of Ischuria from Enlarged Prostate Glands." He spoke at length on the disease, and especially on all the instruments and operations for its cure. He exhibited a special instrument, invented by himself, which had acted so far admirably in his hands. König and Thompson are using it with success. It is a thermo-galvanic cauterizer. It

consists of a sound having four chambers, in two of which runs the electricity, while in the other two a current of cold water goes and returns. In this manner the whole sound is kept cool, and the galvano-cautery acts only at the exit. The operation gives very little pain. The instrument is easily applied, and the results have always been good.

The instrument was generally approved and praised by all present.

Other lectures were given, as "On Professional Secrecy," by Professor Guelfi, and on "Small-pox and Vaccination in Turkey," by Dr. Violi.

EXPOSITION.

The exposition of surgical instruments and apparatus pertaining to medicine was held at Ghislieri College. It was a well-arranged and fine show. Especially interesting was the collection of special furniture for maniacs and beds for epileptics from the insane asylum of Turin. The war and marine departments exhibited much sanitary material for the time of war. The Italian Red Cross had a beautiful collection of saving, dressing material, models, statistics, etc. Much enthusiasm was aroused by the fine exhibit of the Medical and Surgical Poll-ambulance of Milan. This humanitarian and scientific institution, in only five years, has shown statistics of over eighty thousand patients. The clinical material is accurately collected in registers and nosographical tables; the result of surgical operations in plaster of paris models and photos. Splendid was the show of surgical instruments, antiseptic dressings, electric batteries, etc., by Italian makers. Mosso's phletismograph and sphygmomanometer received much attention. I am delighted to say that Italy has really made gigantic progress in medical mechanics, equal to any other country.

AMUSEMENTS.

The members of the association were pleasantly entertained. The city had a gala appearance. Every building was appropriately decorated with flags, etc. Bands of music and choruses of voices played and sang every evening in all public squares. On September 23rd we enjoyed a fine regatta race. In the evening the river was beautifully illuminated, and there was a splendid show of fireworks on the water. Several receptions were given by the prominent citizens. That given by the prefect and mayor was the most elegant.

CHARITIES.

The sick and the poor were not forgotten. Two collections were made in every section, which netted nice sums of money. One was fo

the relief of the sufferers from cholera in southern Italy, and the other for the maintenance and education of orphan children of poor physicians.

The meeting was brought to a close on Saturday, September 24th, with appropriate speeches made by the President, Professor Golzi, Professors Bizzozero, Fedeli, the mayor of Pavia, and others. The meeting was by all pronounced a great success. About eight hundred members were present and the amount of work done was really extraordinary. The meeting lasted five days, and the whole time was one long, uninterrupted period

of work. Every section completed its programme. All the local celebrities of medical science joined in the discussions, and helped to clear many important and recent discoveries.

Let, then, the epithet of "Dolce far Niente" no longer be applied to the Italians. They are fast rising to that level upon which they once stood, and were venerated by the whole civilized world.

Padua was selected for the next place of meeting, in 1889.

A. LAGORIO.

Chiavari, Italy.



ABSTRACTS AND EXTRACTS.

Professor Theophilus Parvin discusses "Questions in the Treatment of Inevitable Abortion," in *The Medical and Surgical Reporter*, for September 3rd. In cases in which uterine contractions and flow of blood continue for two or three weeks, and there follows arrested development in the uterus and retrograde changes in the mammary glands he thinks abortion is inevitable. In cases of threatened abortion he considers the use of copious hot water vaginal injections a very valuable addition to the employment of rest and opium.

As to methods of emptying the uterus in cases of incomplete abortion he prefers first one or two fingers, and, secondly, Emmet's curette forceps.

At the close of more than a column of discussion of the question of immediately emptying the uterus he writes: "Of course at the time of the miscarriage make it complete if possible without injury to the uterus—let the interference be digital rather than instrumental, unless the former fails and hæmorrhage persists; but that time past and part of the ovum being retained, the os closing, I believe it better to wait until distinct call for action is given. There is a middle ground between immediate intervention and absolute expectancy; and in that ground, my faith is, the path of safety lies."

Acetone and diacetic acid in the urine. See p. 310 *et al.* in *The Medical and Surgical Reporter*, for September 3, 1887.

In *The Medical and Surgical Reporter* of September 3, 1887, Enos T.

Blackwell, M. D., discusses the use of tobacco as a relaxant in cases of incarcerated hernia, and reports again two cases first reported in 1860. He used the cut smoking tobacco, binding a mass, about the size of the bowl of a common pipe, about twelve grains in weight, with string, into the form of a suppository. The ends of the string were left long to facilitate the removal of the tobacco when the desired result—reduction of the hernia—had been accomplished. In one of the reported cases the relaxation of the sphincter was so great that the suppository fell out of the rectum.

Dr. Blackwell thinks this method of using tobacco for such effects is thoroughly safe because the suppository can be withdrawn whenever symptoms of intoxication appear, or the desired result is achieved. He considers the use of clysters of the extract very dangerous.

AN EXPERIMENTAL STUDY OF THE EFFECTS OF PUNCTURE OF THE HEART IN CASES OF CHLOROFORM NARCOSIS.

By B. A. WATSON, A.M., M.D.,

SURGEON TO CHARITY, ST. FRANCIS, AND CHRIST HOSPITALS, JERSEY CITY, NEW JERSEY.

There has been, already, considerable written on cardicentesis, although the operation was originally proposed and performed in 1882, by Dr. B. F. Westbrook, of Brooklyn, N. Y. Prior to this date several unintentional punct-

ures of the heart had been made, without being followed by unfavorable results.

Dr. John B. Roberts reported two cases of this kind at a stated meeting of the College of Physicians of Philadelphia, January 23, 1883. He likewise called attention to the fact that "Cloquet, Bouchut, Legros and Onimus have also observed the apparent innocuousness of wounds of the heart made with capillary trocars. Steiner found, ten years or more ago, that electropuncture needles could be quite safely introduced into either ventricle, provided they were at once withdrawn."

Dr. F. M. Corwin reports in detail a case in which a puncture was made in the right ventricle, about one inch from its apex, without giving rise to any unfavorable symptoms. Dr. C. L. Dana has reported two cases, in which punctures of the right ventricle were made with negative results. The reports in both these cases are so meagre as to diminish greatly the value which they would otherwise possess; but the comments on cardicentesis are unquestionably highly valuable.

Having referred briefly to the literature of cardicentesis, which possesses an important bearing on our subject, although we believe this operation has never been performed on the human subject for the relief of chloroform narcosis, we will now briefly state the observation which prompted us to make these experiments.

While working in my laboratory, with my assistant, on the evening of February 20, 1887, I killed, with chloroform, a bulldog, which weighed forty-one pounds; and about four minutes after the cessation of respiration made

an incision from the base of the neck in the median line to the symphysis pubis. This incision was promptly carried completely through the walls of the thorax and abdomen—thus exposing the heart, lungs, intestines, etc. The heart was observed to be entirely motionless and in full diastole, while the lungs were completely collapsed and lying in the posterior portion of the thoracic cavity, in close proximity to the vertebral column. My assistant at this moment seized the heart between his thumb and fingers, when the cardiac action was immediately resumed, and the hand was removed.

The contractions promptly became full and regular, and during the first two minutes the pulsations were about sixty per minute, while during the succeeding minutes they became irregular and stopped at the end of this period, but only to be stimulated into action by the second touch—action continuing two minutes—and was the third time started up in the same manner, but this time continued to beat only one-half minute, and could not again be roused into action.

The lungs during this whole period remained completely motionless, and there were no other indications of life.

These observations suggested to me the possibility of arousing the heart into action, even after the entire cessation of its movements, by the introduction of a needle into this organ.

MEDICINAL LIQUID VASELINE.

A NEW VEHICLE FOR HYPODERMIC INJECTIONS.

Hypodermic medicine seems likely to realize an immense extension in the use, as an excipient for medicinal sub-

stances which it is desired to introduce subcutaneously, of a petroleum product which comes from Europe, and especially from the mountainous regions of Russia, and is known as *liquid vaseline*. This is one of the final products of the distillation of petroleum—coming over after paraffine—and is purified by filtering through animal charcoal. Its solvent powers are immense, multitudes of vegetable and mineral substances readily dissolving in it, and what renders this oil especially valuable is that it is not only unirritating of itself, but it so sheathes and modifies medicaments of a locally irritant character (rendering them bland) as to constitute them suitable and safe for hypodermic use.

Among the substances soluble in liquid vaseline, we may enumerate eucalyptol, iodoform, turpentine, phenol, thymol, iodine, menthol, chloroform, ether, salol, sulphide of carbon, sulphuretted hydrogen, myrtol, cocaine, atropine, aconitia, caffeine, calomel, phosphorus, bromine, etc. Dr. Albin Meunier has most patiently and successfully worked out the requisite formulæ for hypodermic injections with liquid vaseline for their basis. Among these formulæ none seems to have given better satisfaction in pulmonary and bronchial complaints than the combination of eucalyptol with liquid vaseline—one part of the former to five of the latter. Five cubic centimeters of this solution are injected into the gluteal region night and morning, and under this treat-

ment has been noticed a marked lessening of the cough and expectoration. A two-per cent. solution of iodine in liquid vaseline is highly spoken of in asthma, emphysema, the uric acid diathesis, etc.; the dose is one syringeful, to be injected into the outer part of the thigh. A twenty-per-cent. solution of chloroform is recommended to be injected in sciatica and other painful affections, and a ten-per-cent. solution of salol is well spoken of in sciatica. The injections must be made deeply in the muscles. There are formulæ for bromine for antiseptis in diphtheria, and calomel for administration in syphilis.

Bourneville and Bricon have recently published a series of convenient formulæ, with liquid vaseline for basis, in their therapeutic manual, and the members of the Société de Thérapeutique seem enthusiastic in their praises of the new mode of treatment, which bids fair greatly to add to our therapeutic resources by enabling us to use hypodermically multitudes of remedies which heretofore could not be administered in this way.

Liquid vaseline, according to Roymond, is the result of the depuration of the mineral oil of Baccou in Russia. In distilling this oil, several intermediate substances first come over (ethers and illuminating oils), finally paraffine and liquid vaseline. The Germans call the latter *liquid paraffine*.—*Boston Medical and Surgical Journal*.

FOREIGN CORRESPONDENCE.

TO THE EDITOR,

Dear Sir:—I have been requested, by some of your readers, to say a few words through your columns concerning Bermuda and the means of getting here.

Bermuda is situated in 32° north latitude and 65° west longitude, being about 700 miles from New York City.*

The Quebec Steam Ship Company sends good steamers every fortnight from Pier 47, North River, New York, leaving at 3 P. M. on Thursdays, and arriving here on the following Sunday morning. The fortnightly steamers are converted, on January 15th, into weekly steamers. During the month of April there will be a third steamer making several trips, in order that the return of visitors may be facilitated,—a matter which has heretofore prevented many from visiting the island.

Some individuals consider this a very sea-sick trip, but I am under the impression that, the voyage being so short, people have not time to get over *mal de mer* and enjoy it, whereas if the time were extended from 68 hours to six days, the end of this trip would be as pleasant as the end of most, and the mishaps of starting would be forgotten. The Steam Ship Company tells me it hopes in a year's time to reduce the sea trip to 52 hours, arriving on Saturday night instead of Sunday. The accommodations on board the boat are very good.

On the island there are two large hotels, the Hamilton and the Princess,

* Messrs. A. E. Outerbridge & Co., of 51 Broadway, New York, agents of the Quebec Steam Ship Company, can give information that may be desired.

the latter opening on December 10th, and the former on December 24th, and offering accommodations equal to the average first-class American resort houses, and at rates about equally current among them. There are, besides, numerous pleasant and comfortable boarding houses in various parts of the island, quotable at from \$12 to \$14 per week.

TEMPERATURE.—During the season proper, from December to May, the average minimum (for ten years) ranges from 55° to 65° Fahr., and the average maximum from 68° to 76°—the extreme minimum in the most exposed places being 48°, occurring about 4 A. M.; the extreme maximum being 80° (unusually) in those months, seldom reaching 90°, even in summer. The extreme low temperature in the usual dwelling parts is about 54°. From 9 A. M. to 5 P. M. the thermometer usually ranges from 60° to 70°, seldom varying more than 5° in one day.

The barometer may go to 29.°0 during a storm, but usually it remains at from 30.°0 to 30.°6. As is easily seen from the above temperature, patients with diseases requiring an even temperature will find that here. Among those diseases which a residence in Bermuda may benefit are:

1. Genito-urinary troubles.
2. Chronic rheumatism and gout.
3. Bronchitis, chronic throat affections and fibroid phthisis.
4. Phthisis in its earliest stages, limited to cases without loss of lung-tissue, such as are benefited by a prolonged sea

voyage with the even temperature (limited consolidations, early hæmorrhages, prolonged respiration). Cases with cavities in the lungs should not be sent here. In early cases of phthisis our climate acts as it does in bronchitis. My experience is that early cases are usually benefited here, provided the patients observe the ordinary precautions of avoiding the night air as much as possible. From 9 A. M. until 5 P. M. patients can usually be out, driving, yachting or walking, the air seldom being either chilly or too warm for sufficient exercise. I have frequently seen those who have had a few hæmorrhages continue well as long as they followed the practice of spending the winter here.

5. Rest, in cases of nervous prostration and of over-work, can be had here probably more absolutely than elsewhere, as

there is no cable, and business communications and prices of stocks can only arrive in weekly installments.

6. MALARIA.—As we have no fresh water swamps we are absolutely free from malarial miasma, our soil and rock being so porous that water rapidly runs from the surface.

7. Convalescents from acute and other affections.

8. Dyspepsia.

I need hardly mention that, for well people, who wish to avoid the cold and who can do with a limited amount of excitement, as well as for children, Bermuda is charming.

DUDLEY C. TROTT, M. B.,

F. R. C. S., Eng.

HAMILTON, BERMUDA,
November 1, 1887.



BOOKS REVIEWED AND BOOKS RECEIVED.

OPERATIVE SURGERY ON THE CAD-AVER. JASPER JEWETT, GERMANY. Small 8vo, Pp. 150, cloth. New York: D. APPLETON & COMPANY.

A hand-book, such as this, was needed both by medical students and by graduates in medicine. It will be a useful book. The author has adopted the most recent nomenclature. The arrangement of the work is synoptical and systematic, and the land-marks given are accurate. The absence of illustrations of the operations and anatomical data regarding the parts involved detracts from the value of the work, which must nevertheless be considered a practical little book. The typographical work is excellent, and without error.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. By ROBERTS BARTHOLOW, M. A., M. D., LL. D. Sixth Edition. Revised and enlarged. Pp. xxiv. and 802. New York: D. APPLETON & Co., 1887. CHICAGO: W. T. KEENER.

The additions to this well-known treatise which have been made in this edition consist chiefly in a discussion of the large number of new remedies contributed by the chemical domain of pharmacology. Such recent drugs as Acetanilid, Pyridin, Urethan and others of their several classes, being classified according to their physiological action, and discussed in the author's characteristic and terse style. The new matter has added about one hundred pages to the treatise.

BOOKS RECEIVED.

OUTLINES FOR THE MANAGEMENT OF DIET. By EDWARD TUNNIS BRUEN, M. D.

WHAT TO DO IN CASES OF POISONING. By WILLIAM MURREL, M. D., F. R. C. P.

EIGHTEENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS.

A MANUAL OF TREATMENT BY MASSAGE AND METHODICAL MUSCLE EXERCISE. By JOSEPH SCHREIBER, M. D. Translated by WALTER MENDELSON, M. D.

TRANSACTIONS OF THE THIRTY-SEVENTH ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY, CHICAGO, MAY, 1887.

SYPHILIS. By JONATHAN HUTCHINSON, F. R. S., LL. D.

SURGERY, ITS THEORY AND PRACTICE.

By WILLIAM JOHNSON WALSHAM, F. R. C. S.

THE STUDENT'S GUIDE TO DISEASES OF THE EYE. By EDWARD NETTLESHIP, F. R. C. S.

DIFFERENTIAL DIAGNOSIS: A MANUAL OF COMPARATIVE SEMEIOLOGY OF THE MORE IMPORTANT DISEASES. By F. DE HAVILLAND HALL, M. D.

THE PRINCIPLES OF ANTISEPTIC METHODS APPLIED TO OBSTETRIC PRACTICE. By DR. PAUL BAR. Translated by HENRY D. FRY, M. D.

A HANDBOOK OF GENERAL AND OPERATIVE GYNÆCOLOGY. By DR. A. HEGAR and DR. R. KALTENBACH. Edited by E. H. GRANDIN, M. D. Vol. VI. of *Cyclopedia of Obstetrics and Gynecology*.

DISEASES OF THE FEMALE URETHRA AND BLADDER. By F. WINCKLE, M. D.; and **DISEASES OF THE VAGINA.** By A. BREISKY, M. D. Edited by EGBERT H. GRANDIN, M. D. Vol. X. of *Cyclopedia of Obstetrics and Gynecology*.

DRUITT'S SURGEON'S VADE-MECUM. A MANUAL OF MODERN SURGERY. Edited by STANLEY BOYD, M. B., B. S., LOND., F. R. C. S. ENG.

DIFFERENTIAL DIAGNOSIS OF THE DISEASES OF THE SKIN. For Students and Practitioners. By CONDUCT W. CUTTER, M. S., M. D.

VASO-RENAL CHANGE versus BRIGHT'S DISEASE. By J. MILNER FOTHERGILL, M. D., EDIN.

INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, U. S. ARMY, AUTHORS AND SUBJECTS. Vol. VIII. **LEGREN-MEDICINE.** (Naval.)

- LESSONS IN GYNÆCOLOGY. By WILLIAM GODDELL, A. M., M. D.
- A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Edited by ALBERT H. BUCK, M. D.
- A HANDBOOK OF GENERAL AND OPERATIVE GYNÆCOLOGY. By DR. A. HEGAR and DR. R. KALTENBACH. Vol. VII. of *Cyclopædia of Obstetrics and Gynecology*.
- DISEASES OF THE MAMMARY GLANDS. By TH. BILROTH, M. D. And NEW GROWTHS OF THE UTERUS. By A. GUSSEKROW, M. D. Vol. IX. of *Cyclopædia of Obstetrics and Gynecology*.
- TREATISE ON HUMAN PHYSIOLOGY. For the Use of Students and Practitioners of Medicine. By HENRY C. CHAPMAN, M.D.
- A MANUAL OF THE PHYSICAL DIAGNOSIS OF THORACIC DISEASES. By E. DARWIN HUDSON, JR., A.M., M.D.
- OPERATIVE SURGERY IN THE CA-DAVER. By JASPER JEWETT GARMANY, A.M., M.D., F.R.C.S.
- FUNCTIONAL NERVOUS DISEASES—THEIR CAUSES AND TREATMENT. By GEORGE T. STEVENS, M.D., Ph. G.
- THE PRINCIPLES OF THEORETICAL CHEMISTRY, WITH SPECIAL REFERENCE TO THE CONSTITUTION OF CHEMICAL COMPOUNDS. By IRA REMSEN.
- TRANSACTIONS OF THE ASSOCIATION OF AMERICAN PHYSICIANS. Second Session, June 2 and 3, 1887.
- HEADACHES DUE TO EYE-STRAIN. By C. G. SAVAGE, M. D.
- RENAL COLIC, PARASITIC AND CALCULOUS. By J. B. MARVIN, M. D.
- HEREDITY AND TUBERCULOSIS. By FRANK DONALDSON, M. D.
- A UNIQUE CASE OF BI-LATERAL ATHE-TOSIS. By C. H. HUGHES, M. D.
- THE RELATION OF THE NERVOUS SYSTEM TO HÆMOPHILIA, MALARIAL HÆMATURIA, ETC. By C. H. HUGHES, M. D.
- THE PREVENTION OF CHOLERA INFANTUM AND KINDRED DISEASES, AND POISONING BY CHEESE, MILK, ETC. By VICTOR C. VAUGHAN, M. D., Ph. D.
- CONTRIBUTION A L'ETUDE CLINIQUE ET BACTERIOLOGIQUE DE LA FIEVRE JAUNE. Par le Dr. ANTONIO MATIENZO.
- SURGICAL RELATIONS OF THE ILEO-CÆCAL REGION. By J. McF. GASTON, M. D.
- PATHOLOGY, DIAGNOSIS AND TREATMENT OF PERFORATION OF THE APPENDIX VERMIFORMIS. By J. McF. GASTON, M. D.
- BIOLOGY OF TUMORS. By N. SENN, M. D., Ph. D.
- REPORT OF THE ILLINOIS STATE BOARD OF HEALTH, QUARTERLY MEETING, JULY 8, 1887.
- TRANSACTIONS OF THE PATHOLOGICAL SOCIETY OF PHILADELPHIA, Vol. XII., September, 1888, to July, 1889.
- TRANSACTIONS OF THE MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF MARYLAND, APRIL, 1887.
- TRANSACTIONS OF THE AMERICAN OTOLOGICAL SOCIETY, JULY 19, 1887.
- TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF WEST VIRGINIA, 1887.
- TRANSACTIONS OF THE TEXAS STATE MEDICAL ASSOCIATION, 1887.
- TRANSACTIONS OF THE MEDICAL ASSOCIATION OF THE STATE OF MISSOURI, 1887.
- REPORT ON IMPROVED METHODS OF SEWAGE DISPOSAL AND WATER SUPPLIES. By C. W. CHANCELLOR, M. D.

THE MEDICAL JOURNAL AND EXAMINER.

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No. 6.

TETANUS.

BY L. L. MCARTHUR, M. D.

READ BEFORE THE CHICAGO MEDICAL SOCIETY, ON DECEMBER 5TH.

In presenting the following paper to this society, the intention has been rather to provoke renewed discussion upon an important subject already oft gone over, than with the hope of presenting any very original work. If by so doing new ideas with new experiences are added to our meager fund of information, concerning the causation and treatment of this rare and fatal disease, as well as the clearing away of any inherited cobwebs bequeathed by our medical ancestors, the work will not have been in vain.

Before entering upon the discussion of the subject proper, let me state that those diseases to which the term tetanus is applied, as a complication or phase, such as puerperal tetanus, tetanus neonatorum, tetanilla, etc., will not be included under the caption of this paper, inasmuch as more or less satisfactory explanations of their etiology, pathology and treatment are extant.

It is defined as "a disease characterized by permanent and painful contractions of the voluntary muscles, wholly or in part, habitually beginning in those of the neck and inferior maxilla, and extending thence to others."

Nicaise makes the best subdivision of the disease, viz :

- 1 Acute.
- 2 Sub-acute.
- 3 Chronic.

While others, intending to hint at the etiology, add to the above—

Tetanus e frigore (from cold).

Tetanus traumaticum.

Tetanus spontaneous, further modifying these by adding special terms for the special groups of muscles involved, as *trismus* for the jaw, *opisthotonos*, for the extensors of the trunk, *emprostotonos*, for the flexors of the trunk, or for the special character of the contractions which may be (1) continuous, (2) intermittent.

ETIOLOGY.

When more unanimity exists as to the causation of this disease more rational therapeutics as well as satisfactory results can be expected ; and I trust that a reflection of the opinions to-day current with recognized authorities may indicate a step in advance to us through the labyrinth of suggested causes.

This much is so well known as to be almost axiomatic, that every case of tetanus has, as a *primary factor*, a trau-

matism, be that traumatism so small as the prick of an hypodermic needle or so extensive as the crushing of a limb, so slight as a burn upon the forearm, or so extensive as the contusion *without laceration* of the buttocks incident to a fall from a horse's back. Is it strange, then, that the primary traumatism is often overlooked? Would not many a "*spontaneous* tetanus" change its name to "traumatic," had the physician had emphasized for him the fact that in this disease, as in hydrophobia, to which it bears a strong analogy, the primary, and, may I say infecting, wound has often long since healed ere the dreaded symptoms make their appearance.

Race proclivities are mentioned as a factor predisposing the blacks to more frequent attacks than whites; while the countless other causes advanced, if considered in the light of the recent progress in bacteriology, serve but to explain the introduction of the *materies morbi*, virus, germ—call it what you will—which constitutes the *second factor* in the etiology of tetanus.

Then becomes clear the predisposition which *occupation*, as hostler, stable-boy and gardener induces, since these are affected more frequently than any others.

Climates. Where sudden alternations between heat and cold, with moisture, occur, thus favoring the growth of vegetable matter, the disease is more frequent, even in epidemics among the lower animals, as often occurs in India. The depressing influence of *wet and cold* on the wounded was clearly shown upon the battle-field of Botzen. Verneuil claims, and the mass of evidence now collected certainly tends that way, that tetanus is *always* an infectious, never a spontaneous, malady—sustaining his claims by pointing out the frequency

with which hostlers, who deal with the animal most often attacked, acquire the disease; the frequency with which the history of tetanus in the groom is preceded by the same in his horse. This is sustained in two ways: First—*Clinically.* Well-authenticated cases distinctly traceable to wounds received while treating tetanic horses, the case of the late Dr. Wing, a veterinary surgeon of New York, being one in point. While making a post-mortem on the cadaver of a horse which had died of tetanus, he accidentally scratched his hand, acquired the disease and died. Secondly—*Experimentally.* By the investigations of Rosenbach, who, while studying the hygienic influences of garden soil, eliminated and cultivated therefrom a microorganism which, when introduced beneath the skin of the lower animals—except the dog, which is exempt therefrom—invariably induced tetanus, even through any number of cultures. Small masses of muscular tissue, carefully excised from a case of tetanus and introduced into the subcutaneous tissue of lower animals, promptly induced the characteristic phenomena.

Clinically, again, this receives great support when one considers the disproportion of tetanus occurring in wounds of upper and lower extremities, as reported in the Surgical History of our late war.

In 16,000 foot-injuries 57 cases of tetanus ensued.

In 12,000 hand-injuries not a single case was reported.

Here the possibility for wound-infection of the foot was much greater from the soil than in the case of the hand. If further evidence were wanting to prove that there must be a specific element, it may be supplied by the cases, reported by Betoli, of three slaves, who, although specially cautioned not to eat of the flesh

of a horse dead of tetanus, did eat of it, and all contracted the disease, and all died of it.

To test the truth of Rosenbach's statements, both Flügge and Nicolaies repeated his experiments with positive results.

Then Socin, of Basle, made the direct test by introducing garden soil subcutaneously, with the result of inducing tetanus.

Before leaving the subject of etiology mention ought to be made of the theory of E. Rose, that tetanus is due to an ascending neuritis. This seems to be true as revealed by post-mortem examination in some cases; but what advance have we then made—for something must cause the inflammation?

This induces the reflection that just as the germ of hospital gangrene would spare the muscles, but dissect away their sheaths and connective tissue, so that of tetanus may have a predilection for nerve tissue, and thus explain the neuritis.

Gautier, who has advanced toxicology so much by his investigations of cadaveric alkaloids, leucomaines and ptomaines, furnishes by far the most acceptable explanation of the phenomena of tetanus-poisoning, by having extracted from the fluids in which various germs have grown alkaloidal bodies of fixed chemical and physiological properties, but differing for each microorganism. Thus the micrococcus of septicæmia invariably produces an alkaloid named septicine of definite chemical properties, which can be extracted by the usual methods for obtaining alkaloids, and which, when introduced into the circulation, produces temporarily all the phenomena of septicæmia, ephemeral fever; so, too, from the culture-fluid of bacillus tuberculosis an alkaloid can be obtained

producing temporary hectic, followed by sweating, etc. One of these alkaloids, extracted by Gautier reacts upon the organism like the strychnia group, and induces tetanic convulsions identical with those of tetanus.

DIAGNOSIS.

In regard to the differential diagnosis between tetanus and allied diseases, some points will bear reference here, though to cover the entire ground might seem a work of supererogation.

Reëmphasizing Rosenthal's remark, "*Many cases have been reported as tetanus which were merely varieties of tonic spasms, affecting the trunk and limbs. In all these the characteristic sign of morbid increase of reflex action has been lost sight of,*" I would say that special care should be used to differentiate this disease from hydrophobia, hysterical tetanus, the masticatory spasm of Romberg, and certain tonic spasms resulting from obscure meningeal inflammations of the base of the brain. In *hydrophobia* the history, combined with the usual six weeks' period of incubation, whilst that of tetanus generally being within twelve days, will usually suffice to differentiate; but without these, cases so closely simulate it that, as before mentioned, the French school have made a special class for such "*tetanus hydrophobica*." Some of the early-developing, alleged, cases of hydrophobia may have been simple traumatic tetanus, the history of a bite having misled the diagnostician. In hydrophobia there is usually periodic unconsciousness, alternating with delirium, while in tetanus the mind remains clear to the last.

Hystero-tetanus of a marked character can usually be differentiated by the thermometer; it is of a quick and benign course.

Romberg has called attention to a

spasm of the masticators supplied by motor branches of the trigeminus as a result of cerebral softening, cerebritis, and circumscribed meningitis. This, if superficially observed, might be considered as a localized tetanus, called trismus. Tetanic conditions, it is to be remembered, complicate many acute diseases; but their individual peculiarities here point to the true diagnosis.*

The acute form might justly be called tetanus fulminans, so sudden and severe is its onset and course. Three days of high temperature, severe convulsions, terminating always fatally at the end of the fourth day with spasm of the larynx, or heart-failure, possibly from remedial agents employed. Spasms yield only to chloroform or ether.

In *the subacute form*, the symptoms are slower in appearing and not so severe in their character, with fifty per centum of recoveries, having an average duration of twelve days, while in the *chronic form* we have no abnormal temperature, the spasms are slight, and terminate favorably in thirty to sixty days. In fact, the fatality of tetanus is in direct ratio to the acuteness of the attack, as Dr. Moses Gunn has stated.

Further subdivisions have recently been added to the usual classes, of which *Kopftetanus* of the Germans is applied to a tetanic spasm of the muscles of the jaw and face, in which the spasm of the muscles on one side the face being greater than on opposite side, causes the same distortion that accompanies facial paralysis. This variety is very insidious in its onset as well as always fatal.

Again, we have the tetanus hydrophobica of the French school; in that variety

the spasms affect the muscles of the pharynx and larynx largely. It is of the greatest importance to the patient that the diagnosis be made early, because incipient cases yield more readily than those well advanced.

As the knowledge of nervous diseases becomes better, I venture to predict that two or even three diseases possessing many of the characteristics of tetanus and each other, will be differentiated from the general class tetanus into sub-classes of their own, and found to be due to other causes.

DIFFERENTIAL DIAGNOSIS.

Three to five per centum of all cases are of the partial character.

In lieu of the clinical history and course of the disease, let me give briefly the history of one of my cases:

James Cash, aged 31, a switchman by occupation, of good physique and general health, was brought to St. Luke's Hospital for a crushing injury of the foot, received on Illinois Central railroad, on September 26, 1887. While coupling cars in motion and walking backward between them, his foot caught in a frog. With difficulty he pulled off his boot and threw himself to one side, but received a crushing injury by a flange of a wheel which ran obliquely across the heel, and crushed the posterior half of the os calcis. On reaching the hospital the wound, which was full of dirt, was washed, irrigated and dressed antiseptically. During the night he had a slight hæmorrhage, for which a bandage was applied. He admitted having been drinking; otherwise his general conditions had always been excellent. There was no history of any nervous diseases in his family.

Careful microscopical examination was made of numerous sections of the sciatic,

*Due acknowledgments are here made to Nicaise's article in Ashurst "System of Surgery;" *Medical Record*, *Progres Medicales* and *Wiener Med. Wochenschrift*.

removed under antiseptic precautions, but nothing could be found there of a bacterial character. A post-mortem examination not being permitted, it was impossible to obtain the tissues situate near the wound; so the result, while negative, was not of much weight. Punctate hæmorrhages, with infiltration of the connective tissue sheaths by leucocytes, were noticed.

Nothing of special interest occurred from September 26th, the date of his admission, outside the usual surgical dressing, which had been more or less painful, and the temperature ranging between 100° F. 103.5° for which quinine was given. Nothing more occurred than was to be expected with the wound, until October 9th, when the bowels, having been somewhat constipated—a prodromal symptom—a cathartic of ol. Ricini was ordered at night for him. October 10th, at 4 P. M., he began to complain of pain between his shoulders, and his hands and arms were twitching slightly. Ordered Bromidia ʒss. every three hours, p. r. n. His diet was milk, egg-nogg, light food. 11th, A.M. Slept little during the night. The pain between the shoulders continued, and his face was drawn at the angles of his mouth. P. M. Slight opisthotonos, and I increased the Brom. to ʒi. every three hours. October 12th Risus Sardonius was marked, but says he feels good; look of contentment on face; trismus requires stick between *teeth* to avoid gritting *them*; says he is *much better*, Bromide ʒss. *every two hours*. 13th; some difficulty in swallowing showing itself. Dress foot myself. Give ether, and open up the entire sole of foot. Wash out with 95 per cent. Found sphacelus of connective tissue. Bromide ʒi, chloral gr. 10, every two hours. 14th,

worse; every symptom worse; chloroform during the night; stretch sciatic; Physostigmatis, gr. 1/8 every hour.

15th, spasms were quieted by operations; they returned at 6 P. M., and during night were very bad. Chloroform 3 times during night. Respiration greatly interfered with. Death on 16th, A. M. No post-mortem permitted.

Treatment.—As the result of my investigations of the history of the cases collected between 1882 and 1887, nervous sedatives seem to yield the best results when combined with the most absolute quiet and rest. Gross says in forty years' practice he had seen but three cases recover—then only after a protracted struggle, bromides and opium being the main-stay.

PHYSICIAN.	CASES.	REC'DY	DEATH.	TREATMENT.
Cheesman ..	1	1		Whisky to intoxication.
Acentz.	1	1		Venesection, Morph. 5 cent, hypoderm. rec.
Alderson. ...	3	3		Bromide and chlor. ss., 25 grs., 2 hours.
Gunn.	3	2	1	Physostigma Nerve stretching.
Stair.	2	1	1	Herole chloral and bromide.
Verneull. ...	7	5	2	Chloral & brom. Quiet and rest. 1 sudden death.
Jackman. ...	1	1		Urethran; after failure, chloral.
Mayer.	1	1		Chloral and bromide.
Brown.	1	1		Quin., enormous doses; 100 grains every hour.
Beck.	86	21	15	Chloral.
Wood.	13	11	2	Br. Pot.
Kolipinski. .	1	1		Recovery; chloral.
R. H. McCord	3	2	1	Chloral.
McArthur. .	4	3	1	Nerve stretching in 1. Calabar bean in other.
Total.	77	54	23	1 Imbecile.

A glance at the foregoing table will show that as yet our main reliance must be on

the symptomatic treatment, using as essential, with protection from all external sources of irritation, such as noises as such. The most absolute quiet is or sudden draughts.

REPORT OF A CASE OF NEPHROLITHOTOMY.*

BY W. T. BELFIELD, M. D.,

SURGEON TO THE COOK COUNTY AND THE MAURICE PORTER HOSPITALS.

James F——, thirty-seven years old, gives the following history: Some fifteen years ago he suffered for several months from great irritability of the bladder, urinating very frequently and with considerable pain. On several occasions he passed blood. He was treated at that time for "cystitis." These symptoms gradually disappeared. At intervals thereafter he suffered from dull pain in the loins, often extending upward to the chest, and sometimes incapacitating him for work. For the past two years pus had been seen in the urine, constantly, in varying quantity. At times the amount would be small for a few days, during which time the pain in the side became severe; then a large quantity of pus would be discharged while the pain diminished. After treatment for various complaints he came, about a year ago, under the care of Dr. Frank Billings, who discovered an increased area of dullness over the left kidney, and at times a distinct though slight swelling in the loin. Recognizing that the left kidney was the seat of suppuration, Dr. Billings endeavored to ascertain the cause thereof. Tuberculosis was almost certainly excluded by repeated examinations of the pus for the characteristic bacilli, with negative result. As renal calculus seemed the most probable diagnosis, Dr. Billings referred the patient to me for operation. After thorough examination and observation this seemed to me also the most plausible diagnosis, though many of the acute symptoms of calculus did not then exist. The right kidney could be felt through the abdominal walls and seemed normal; yet, previous to the operation, I endeavored to demonstrate its integrity by closing the ureter of the one under suspicion, by means of Silbemann's catheter. The instrument caused so much pain, however, that the result was unsatisfactory. June 26, last, in the presence of Drs. Billings, Hosmer and Tilley, I explored the left kidney through an oblique lumbar incision. The organ was found to be enlarged and flabby. Upon incising the cortex an explanation of this condition was found in a slight hydro-nephrosis. The cause of the hydro-nephrosis was found in a calculus of conical shape, some two inches in length, its smaller end impacted in the ureter so tightly as to require some force for its extraction. A few loose flakes were afterwards removed from the pelvis and ureter. Recovery ensued without notable event. On the 14th day the patient visited his place of business; in two months his weight increased from 105 to 123 pounds, and all morbid symptoms had disappeared, except that some pus was still present in the urine; this

* Reported to the Chicago Medical Society, November 21, 1897.

has now become so slight in amount as to be discoverable only with the microscope. Presumably the shriveling of the distended kidney is about accomplished. The stone is an oxalate or mulberry calculus, and weighed 244 grains.

REPORT OF A CASE OF CANCER OF THE PROSTATE.

ALSO, BY W. T. BELFIELD, M. D.

Hans J.—, aged forty-eight years, was admitted to the Cook County Hospital, suffering from unduly frequent and somewhat painful urination, symptoms which had existed for some three months. On two occasions blood had been observed in the urine. Examination *per rectum* showed a slightly enlarged though symmetrical prostate, along the center of which, instead of the normal depression, was a slight protuberance. By the microscope we found in the urine a few blood corpuscles. A tumor of the prostate, either papillomatous or malignant, was diagnosed; the latter seemed more probable, because the quantity of blood in the urine was altogether too slight for the benignant variety. Efforts to entangle and bring away shreds of the supposed growth in the eye of a metallic catheter, failed. May 7th, the bladder was explored by supra-pubic incision, and a malignant villous growth was found growing from the left side of the prostate, the villi projecting an inch or more into the bladder. These were removed with forceps and spoon and the base cauterized. Recovery ensued without notable event, and for eight weeks the urinary function seemed almost normal; then the former symptoms began again and steadily increased in severity. The growth finally entirely filled the bladder and involved the abdominal wall, producing a small fistulous opening, and constituting a tumor which could be plainly outlined above the symphysis pubis and through the rectum, apparently filling the pelvis. Death occurred October 8th. Only the glands in the immediate vicinity of the bladder were found to be carcinomatous, and no secondary growths in other organs were discovered. The kidneys contained numerous miliary abscesses, a condition often consequent upon chronic cystitis.

EDITORIAL.

NOVELTY AND PRIORITY IN MEDICINE.

The desire to discover and to present to the profession some novelty, and to secure credit for priority in its introduction, seems not to have abated in the last few years, if one may judge of it by recent observation. This fondness for what some call *enterprise* is not confined to the commercial world, for we see around us many evidences that the medical profession is not exempt from it. The odor of sulphureted hydrogen has scarcely left either patient or physician, since the recent explosion of the so-called *Bergeon's Method* of treatment of phthisis, before an equally unfounded claim seems to have been put forth for a rival for cocaine, which was represented as possessing greater anæsthetic and mydriatic properties than cocaine or atropine. Regarding this new local anæsthetic, known as Gleditschine or Stenocarpine, we are now informed that careful analysis has been made of a specimen of this new alkaloid, "which is derived from *Gleditschia Triacanthos*," and that the result has been that it "contains 6 per cent. of cocaine, and a sulphate of a salt, which further experiment is likely to prove to be Atropia." Also, that after careful experiment with the leaves of *Gleditschia Triacanthos* it was found "that they contain only an infi-

nitesimal percentage of an amorphous alkaloid, devoid of anæsthetic or mydriatic properties."

Mr. F. A. Thompson, who conducted these experiments in the laboratory of Messrs. Parke, Davis & Company, at Detroit, says: "In the light of these facts it seems probable that the Stenocarpine sensation should be classed with the Hopeine fraud of malodorous memory, and that the physicians who have already published reports regarding Gleditschine, or Stenocarpine, have been the victims of a clever hoax."

Thus is afforded further evidence of the desirability of trusting to tried remedies that have stood the test of time—the most reliable of all tests.

If, as a result of these unfounded claims, more caution shall result in accepting the assurances given, without fair trial or reliable data, regarding every alleged novelty introduced into medicine, and lead to better use of the remedies, whose value time and experience have demonstrated, instead of seeking something new or unusual for the sake of novelty, these deceptions, like their predecessors, will not have failed to contribute to a good end.

THE OCTOBER QUARTERLY MEETING OF THE ILLINOIS STATE BOARD OF HEALTH, AND OUR SEABOARD QUARANTINE.

A condensed report of the last meeting of the State Board of Health will be found in another department of this number of the JOURNAL AND EX-

AMINER. The secretary of the Board has been active in investigating the quarantine stations at the Atlantic seaboard, and in urging their improvement;

but if the report, on October 27th, of the special committee appointed by the College of Physicians and Surgeons of New York, to investigate the condition of the quarantine at New York, Philadelphia and Baltimore is correct, he seems to have given more credit to the health authorities of the port of New York than is due them, in his statement that all proper and efficient methods were employed in the case of the steamer *Alesia*.

The following statements are taken from a leading article in the *Therapeutic Gazette* for November 15th: According to the personal investigation of the committee mentioned, there are no proper provisions at the ports named to prevent the ingress of Asiatic cholera. At New York, the treatment of the passengers of the steamers *Alesia* and *Britannia* was as follows:

"Hundreds of men and women, some infected, others not, were for several days crowded together in a single large room. They had at first no bedding at all, and when bedding was received it was simply thrown upon the floor, and during the day piled up in heaps, no care being exercised to see that the same individual had the same blankets on successive nights. There were no proper latrines, no proper protection of the water-supply from infection, and the system of disinfection was so bad that for several days the unfortunate people had no access to any clothes save those on their backs. There was no isolation of the groups of passengers, and no attempt at separation of the possibly infected from the well. There was no medical attendance upon

the island during the night. Any person taken with cholera at such a time had to remain without assistance, among the well persons, until the visit of the health officer the next day. Even in the hospital upon an adjacent island, with its ill and dying patients, there was no resident physician, and therefore no proper surveillance of the patients, who apparently, were visited only once in twenty-four hours.

"In the second place, the police supervision was so faulty as practically scarcely to exist, and there can be no doubt that boats passed freely between the infected island and the shore."

This deplorable and dangerous condition of quarantine affairs seems to be due primarily, to an alleged lack of funds, and secondarily to the fact that the quarantine office is a main reliance of one of the political parties of the state of New York for money for campaign expenses. The annual receipts of the office are estimated at from sixty to one hundred thousand dollars. Of this sum, ten thousand is paid to the medical health-officer; seventeen thousand for expenses of the office; and the balance *disappears*. The writer of the article quoted very properly contends that the whole matter of quarantine along the coast is one of general national interest and importance, and that it should be removed from local control, and placed in the hands of the general government.

This subject ought to engage the earnest and active interest of all medical men, since no other class in the community can be considered to be so eminently the guardians of the public health.

ABSTRACTS AND EXTRACTS.

DIPHTHERIA OF THE EAR.

BY ROBERT BARCLAY, M. D.

[A paper read before the St. Louis Medical Society.]

The subject of diphtheria, which has of late been receiving your earnest attention, and which as a throat disease has, in a recent address, been so ably discussed, deserves a broader consideration by you as general practitioners of medicine.

Dr. H. C. Moir, in his "Manual of the Practice of Medicine," which is a careful *rèsumè* of the standard works of Niemeyer, Roberts, Loomis, Da-Costa, Bristow, Hartshorn, and others, says: "It can not be well denied that it [diphtheria] is, first, a constitutional, and, secondly, a local disease; for it seems proven there is a local manifestation of a constitutional development by the fact that the disease can not be destroyed by taking off the various layers of the mucous membrane. It is unquestionably a constitutional disease, and the local changes depend entirely upon the amount of infection."

Intelligent treatment will depend mainly upon a correct determination of the mooted question, whether diphtheria is a constitutional disease primarily, and local secondarily, or *vice versa*. This solution will prove less difficult by making a broader study of diphtheria than is possible in the literature and observation of diphtheria of the pharyngo-larynx alone.

In searching broadly I find numerous reports of diphtheria affecting the genital organs, the eye, wounds, etc. Since the careful study of diphtheria of the eye which was made in 1884 by Dr.

A. von Graefe, ophthalmologists have made further observations, numerous and careful. The frequent invasion of the organ of hearing by diphtheria has long since attracted the attention of otologists; to them the destructive features of this disease upon the ear are familiar, being seen so frequently in neglected aural cases which have been prematurely pronounced "cured" of their diphtheria.

In the excellent recent address upon the "local"—*i. e.*, the faucal and nasal—treatment of diphtheria, owing to its author's having been unfortunately misled in his search for the literature of diphtheria of the ear, the opinion was hazarded that the ear was but rarely attacked by this disease. Lest this should mislead you into carelessness in noting the condition of the organ of hearing, and, through ignorance of the truth, into neglect to protect from invasion of these parts the patients of diphtheria who may now or hereafter be under your professional care, you are here offered a statement of the facts, together with a brief *rèsumè* of the American and European literature concerning diphtheria of the ear, so far as I have found time and opportunity to consult it.

Passing over the cases which in the recent address are said to have been reported by Urbantschitsch, I give you the following:

Dr. S. Moos publishes a full history of a case of idiopathic diphtheria of the

external auditory meatus. As this case is so often referred to by writers on the subject before us, and as it is so typical, I append an abstract of that history, as follows:

A boy ten years old had been twice under treatment by Dr. Moos for purulent otitis media of the left side—first, from July 24 till November 20, 1864, when he was discharged cured and with the perforation closed; and, secondly, after an attack of measles, from January 29 till March 19, 1865, when he was discharged cured of otorrhœa, but with persistent perforation. On August 18th he returned to Dr. Moos, *having suffered intense, constant and increasing earache for thirty-six hours preceding, with fever, loss of appetite, excessive thirst, and, during the second night, delirium.* Deglutition was easy, but mastication impossible because of its painfulness; patient pale and exhausted; pulse weak and 108 to the minute; furred tongue, and *the palate, tonsils, etc., were clean*; traction on auricle, and pressure on tragus painful; glands near by swollen and tender; inner surface of concha bright red; posterior surface of tragus, regio intertragica, and whole surface about outer end of meatus—whose inner portion could not be examined because of contraction—was covered with what is described as “a rather thick, inflexible, lardaceous, greasy coating,” which could not be raised from the underlying structure; attempted separation resulted in only lacerating the parts matted together, with bleeding, and gave the patient intense pain; there was almost deafness on the affected side, except by bone-conduction; and *though the ear emitted a very offensive odor, there was no positive otorrhœa.*

Treatment consists in daily penciling with solution of nitrate of silver (gr. xv. to unc. j.) and frequently washing the parts with warm water. Cold applications of Goulard's solution (1 to 3), to relieve pain, with good effect. Mastication being painful, fluid food and

broths only were given. Local phlebitis was contra-indicated by the poorly nourished condition of the patient. There was still fever, loss of appetite, and great restlessness at night.

August 26th and 27th, insomnia at night. On August 27th, coating about the tragus and entrance to the meatus began to peel off, accompanied by slight suppuration and considerable hæmorrhage.

August 29th, exfoliation began in meatus, accompanied by increased hæmorrhage. Syringing produced considerable hæmorrhage, and for the first time there was a decrease of the pain.

September 2d and 3d, repeated hæmorrhage; no pain. On September 3d, no fever, increased appetite; hearing distance for watch, 4; for voice, eight paces; slight tenderness of ear on traction or pressure. Spots on outside of tragus, etc., described above, now show a sharply marked edge, with slightly granulating and suppurating surface; external meatus presented same appearance; swelling decreased, and, after syringing, speculum was easily introduced, through which old perforation of drumhead was plainly recognized; the drumhead itself was seen to be covered with grayish-red pus, but itself not clearly made out. Improvement followed in external meatus, but a relapse of the otitis media prolonged treatment until October 22d, when patient was discharged cured of his disease, but with a persistent perforation, as before.

Dr. Moos states that “Wreden has observed five cases of diphtheria of the external ear, and in those most carefully noted the membrana tympana was implicated.”

Dr. Adam Politzer writes of croupous otitis externa as a rare form of disease of the external meatus, and refers to cases reported by Dr. William R. Wilde; also to a case, reported by Dr. Gottstein, of croupous exudation of the tonsils and posterior wall of the osseous auditory meatus.

Dr. Bezold reports eleven cases of this affection met with in three years.

Dr. Politzer says that otitis externa diphtheritica is seldom primary, but it is usually a complication of scarlatinal diphtheria of the throat and middle ear. But primary diphtheria of the meatus has been observed and reported by Drs. Moos, Bezold, Wreden, Callan, and Kraussold, which developed during an epidemic of diphtheria, but upon a previously existing otitis externa or excoriated condition of the meatus.

Dr. Blau mentions the necrosis and shedding of the membrane, and reports a case of diphtheria of the external and middle ear simultaneously.

Dr. Jacobson reports three cases of diphtheria of the canal observed at Dr. Lucae's clinic.

Dr. Bezold reports three cases.

Dr. Abraham Jacobi reports two cases of diphtheria of the external ear, one of which had (the other had not) been the seat of what he calls "catarrhal" inflammation. He cites a case of primary diphtheria of the external auditory canal, reported by Wreden, and refers also to several other cases already reported above.

Dr. Charles H. Burnett reports a case where, in a "child sixteen months old, without any previous symptoms of pain or acute inflammation in the ear, a large, cold abscess formed behind the auricle, pus ran from the meatus, the abscess was opened by the family's medical adviser, and denuded bone was found extending along the posterior wall of the mastoid portion." This was part of the diphtheritic disease from which the child was at the time suffering.

I give here titles of two articles upon this subject, of which I could not at present obtain a copy or abstract:

Dr. G. Cerrutti: *Otite externa pseudo-membranosa*.

Dr. J. Boke: *Kroupose Entzündung des aussern Gehörorgans, etc.*

The primary form of diphtheritic otitis externa, if properly treated, is not

apt to be widely destructive. It is characterized by its painfulness, and the production of the diphtheritic membrane.

On the contrary, the secondary form, or one following diphtheria of the fauces and middle ear, is very apt to be widely destructive, oftentimes being attended by great necrosis. It is characterized by its comparative painlessness and rapid transition into the chronic state.

Treatment, constitutional and local, must be supporting, antiphlogistic, antiseptic, and cleansing, modified and adapted to the individual case under attention.

Diphtheria of the middle ear, and middle ear tract, is by far more frequent than one would reasonably expect from the number of so-called "cures" of diphtheria. Of the disease in this region, Dr. Adam Politzer says that the occurrence has been established by the reported observations of Drs. Wendt, Wreden, Moos, Bezold, Kupper, Burkhardt-Merian, Gottstein, Blair and others. The primary form of diphtheria of the middle ear is supposed to have been demonstrated in two cases only, which have been reported by Dr. Burkhardt-Merian.

Post-mortems show the extension of diphtheria from the naso-pharynx to the tympanum.

Dr. Wendt, in his cases of nasopharyngeal diphtheria, reports that 40 per cent. had the same process in the tympanum.

Dr. Wreden reports eighteen cases of the same.

In his discussion of the etiology of acute purulent otitis media, Dr. A. Politzer speaks of diphtheria as a cause, and says: "A consecutive otitis media takes place very often in scarlatinal naso-pharyngeal diphtheritis, as I have been informed by Viennese surgeons in most extensive practice among children."

Again, in discussing the etiology of chronic purulent otitis media, he says: "The suppurations of the middle ear,

however, which most frequently become chronic, are those which arise in the course of typhus or the acute exanthemata, and the scarlatinal and diphtheritic forms are specially characterized by their obstinate course, which frequently defies all treatment."

Dr. D. B. St. John Roosa mentions the fact that diphtheria plays an important part among the factors of acute aural disease, and says that the suppurative forms is the one usually recognized.

Dr. Albert H. Buck reports a case of apparent diphtheritic inflammation of the middle ear.

Dr. J. C. Mulhall reports a case of invasion of the tympanum by diphtheria of the naso-pharynx.

In a report of over two thousand consecutive cases of ear diseases treated by our division of the Aural Staff of the New York Eye and Ear Infirmary, to which is appended a working schedule—a nomenclature and classification of diseases of the ear, you will find mentioned croupous inflammation of the external auditory canal, croupous and diphtheritic otitis media, diphtheria as a complication of disease of the middle ear tract, croupous and diphtheritic inflammation of the Eustachian tube, complicated with this the disease in the naso-pharynx, and paresis of the muscles of the Eustachian tube.

Drs. A. Jacobi, A. Politzer, C. H. Burnett, and others too numerous to mention, emphasize the frequent invasion of the middle ear by naso-pharyngeal diphtheria.

References might be multiplied if the occasion permitted, or necessity demanded; but these will suffice to place you upon your guard while attending cases of diphtheria.

Let me sum up by reminding you that aural invasion by diphtheria is very insidious, usually comparatively painless, showing a marked tendency uniformly to assume the chronic form, and apt to

produce very rapid and wide-spread destruction, with necrosis, and burrowing to neighboring parts. Among its probable effects may be expected one of the following: fetid discharges, often persistent, always annoying and disgusting, deafness, erosion of the Eustachian tube, mastoid perforation, necrosis, partial or facial paralysis (Bell's Palsy), meningitis, thrombosis, embolism, phlebitis, pyæmia, cerebral abscess and death. These dangers, in view of the insidious development of aural diphtheria, should lead you to examine the ear early and frequently in every case of diphtheria which comes under your supervision. Should you find an inflamed and bulging drumhead, even if the patient make no complaint of aural discomfort or pain, it is your duty to make an incision of the drumhead—not a "pinhole," but an opening—sufficient to permit the escape of the products of inflammation, removing them by artificial means, if necessary, to check the burrowing to neighboring regions.

Let the practice of syringing the fauces and nares—which you have heard vigorously recommended for cases of diphtheria with prominent naso-pharyngeal manifestations—be prudent and careful, lest you force materies morbi within the Eustachian tube or into the middle ear. Whatever or wherever the local phenomena, pay close attention to the constitutional condition; treat your *patient*; and in modifying and adapting local measures for management of an aural development of diphtheria, let free drainage, cleanliness and antisepsis be your aim.

In closing, I recommend to you personal consultation of the literature of otology on the subject of diphtheria, so that you may further familiarize yourselves with the facts, and, having done so, act the more confidently and intelligently for the protection of your helpless but trustful patients.—*Weekly Medical Review*.

OXYGEN ENEMATA.

BY J. H. KELLOGG, M. D., BATTLE CREEK, MICH.

Some weeks ago, while employing the carbon-dioxide and sulphuretted hydrogen enemata, it occurred to me that oxygen gas might be employed advantageously in the same manner. Having at that time under treatment a case of lithiasis, I resolved to make a trial of the administration of oxygen by enema, in the hope that by the introduction of oxygen directly into the portal circulation the conversion of uric acid into urea might be aided, and my patient thereby relieved. I was at first deterred from the attempt by the supposition that oxygen would probably give pain, as it has been claimed that the pain sometimes occasioned in the employment of sulphuretted hydrogen by the Bergeon method is produced by the accidental injection of small quantities of atmospheric air. I determined, however, to try the experiment, and made the first injection of two litres of pure oxygen gas on June 20th. At this time the patient, a man of twenty-eight years, was passing very great quantities of uric acid daily, a large quantity of crystals being thrown down from every specimen of urine passed. The symptom had persisted most stubbornly for weeks, in spite of the enforcement of a non-nitrogenous diet, the patient also taking, by direction, from three to five pints of hot water daily. The beneficial effect of either regimen or treatment was so slight as to be scarcely perceptible. Two litres of oxygen were administered regularly each day, about 10 A. M. At the end of three days the excess of uric acid disappeared entirely from the urine, and has appeared only twice since, and then in small quantity, when the injection had been discontinued for a day or two. At the beginning of treatment the patient's skin was very muddy, sclerotics dingy, tongue coated, and he complained of a constant and very annoying brassy taste

in the mouth, and distressing headache. The brassy taste and headache both disappeared very soon after the injections were begun, and there has been a steady improvement in every other particular. The coat has disappeared from the tongue, the skin and sclerotics have become nearly normal in appearance, and the patient has gained several pounds in weight, though before he had been constantly losing weight for some weeks, and seems to be in every respect improved. The patient, a very intelligent gentleman, attributes his improvement almost wholly to the employment of the oxygen, as the measures which had been previously employed had had little or no favorable influence upon his condition, and no change in regimen or treatment has been made with the exception of the administration of the oxygen. It seems to the writer that there may be a large field of usefulness for oxygen employed after this method. The advantages of the employment of oxygen by enema, as compared with the inhalation of oxygen, are very great.

1. In the inhalation of oxygen, only a very small portion of the gas inhaled can be used, the greater part being wasted; as experiment has shown that not more than one-fourth of the oxygen contained in the air is extracted by the lungs during the passage of the air through them in ordinary respiration, and that a very much smaller proportion is absorbed when the quantity of air passing through the lungs is increased, as in deep breathing. Hence, in order to get into the system any considerable quantity of oxygen, it is necessary for a person to inhale a very large amount, making the treatment very expensive.

2. Experiments which have been made for the purpose of testing the therapeutic value of oxygen inhalations

have shown that the proportion of oxygen absorbed by the lungs is not proportionally increased by the increase of the percentage of oxygen in the respired air. Indeed, the reported results of careful experiments show that very little more oxygen was actually received by the system when breathing pure oxygen than in the breathing of ordinary atmospheric air. When oxygen is introduced into the alimentary canal the entire quantity introduced is absorbed, and thus utilized, making it possible to introduce a known quantity of oxygen into the system, and in a manner which leaves no room for doubt that it has been received and appropriated.

3. In cases in which it may be considered desirable that a considerable quantity of oxygen should be introduced into the system for the purpose of encouraging the oxidation processes by which effete matters are disintegrated and prepared for alimentation, especially those which are acted upon by the liver, the oxygen enema offers a means by which the gas can be applied where it is most needed. Oxygen received by the lungs passes at once to the left side of the heart, and thence through the arterial system to the entire body, so that the liver receives no more than its due proportion of the gas. Consequently, a very considerable increase in the quantity of oxygen absorbed through the lungs would scarcely increase to an appreciable degree the amount of oxygen available for use by the liver. This fact is made particularly conspicuous when we reflect that the chief source of blood-supply to the liver is the portal circulation. It is apparent, however, that when oxygen is introduced into the lower part of the alimentary canal, it is at once received through the venous absorbents into the portal circulation, through which it is conveyed directly to the liver, precisely where it is needed, thus making the entire amount of oxygen administered available for the purpose for which it is

administered. Is it not, then, apparent that this method of administering oxygen possesses, for cases of the sort referred to, an immense advantage over its use by inhalation?

4. The process of digestion is, from a chemical standpoint, chiefly a process of hydration and oxidation. The experiments of Dujardin-Beaumetz, performed some time ago, showed that the drinking of oxygenated water exerts a very beneficial effect upon the digestive process in persons suffering with slow digestion. (I have not seen any extended account of experiments of Dujardin-Beaumetz; I have simply seen in medical literature a mention of the fact stated.) May it not be true that, in some cases, at least, the difficulty under which the digestive organs labor is a lack of a sufficient supply of oxygen in the blood, or, at any rate, that the introduction of oxygen into the portal circulation by oxygen enemata may be found to facilitate the digestive process? It is very easy to make a practical test of the matter, and I am now engaged in a series of experiments in the use of oxygen in various forms of dyspepsia, the results of which I shall report at some future time.

5. It seems to me that oxygen enemata may be employed advantageously in a great variety of cases; in fact, in all cases in which there is such a disturbance of the normal interchange of gases in the lungs as deprives the system of its proper amount of oxygen. The mucous membrane of the intestines presents an absorbing surface; very small, it is true, when compared with the amount of surface presented to the air in the lungs, and yet it is sufficiently great to allow of the introduction into the system of a large amount of oxygen in addition to that which can be gotten in through the lungs; and this additional quantity, though small when compared with the total amount received by the lungs, may be of sufficient value to the system to be of immense advantage to it, especially on

account of its introduction at this particular point in the circulation. The notable functional disturbances of the stomach which accompany various pulmonary disorders, such as emphysema, chronic bronchial catarrh, chronic pleurisy, pneumothorax, etc., suggest a very important relation between the digestive function and the quantity of oxygen received through the lungs. The same relation is also suggested by the frequency with which dyspepsia occurs among sedentary persons, who are habitually air-starved in consequence of deficient muscular activity. Oxygen enemata may prove a valuable remedy in cases of this sort, as well as in others in which an additional supply of oxygen is needed.

I have carefully questioned patients respecting the retention of the oxygen injected, and have found that it has always been retained without difficulty, and does not pass off as flatus from the bowels or eructations from the stomach. This fact offers good evidence of its absorption; but to determine the fact beyond the possibility of question, I made, on July 20, an experiment on a guinea-pig. After placing the animal under chloroform, the abdomen was opened, and the intestines drawn out and spread out in such a way that the dark portal veins were in full view. A quantity of gas was then injected into the rectum, and, to my great satisfaction, I found that the dark venous blood assumed a bright red hue, almost equal to that of arterial blood, within less than one minute after the injection of the gas, showing the rapidity with which the absorption of the oxygen takes place. To confirm the result, I allowed the oxygen to escape from the bowels, afterwards replacing it, and repeating the experiment several times. In each instance the color of the blood in the mesenteric veins assumed its ordinary dark purple color immediately after the oxygen was withdrawn, while the bright color returned almost instantly when the new supply of oxygen

was introduced. I have been informed by Dr. Hal Wyman, of Detroit, that he made a similar experiment upon dogs a number of years ago, and that he observed the same result as regards the effect of the oxygen on the color of the blood in the portal circulation, but I understand that he made no attempt to employ oxygen in this manner for therapeutic purposes. Indeed, I am not aware that the gas has been used in this manner prior to my own experiment in the case which I have reported. I shall, however, be much surprised if I learn that I am entitled to the credit of priority in this matter, as it seems to me that I must have been very dull not to have sooner thought of this mode of employing so valuable an agent as oxygen.

It has been long known to physiologists that in certain fishes the mucous lining of the alimentary canal performs a very important part of the work of the respiratory system. Some members of the gar family are killed as quickly by cutting off the supply of oxygen to the alimentary canal as by interrupting the gill respiration. Great numbers of illustrations might be given from the lower classes of the animal kingdom in which the entire process of respiration is carried on by the mucous lining of the alimentary canal. Why, then, should not man, whose alimentary canal is very much more extensive and better fitted for absorption than in lower animals, also be able to receive a very appreciable and efficient amount of oxygen through this channel? In my experiments thus far I have found that patients take, without inconvenience, from one to two litres of the gas at a time, and this dose can be repeated three or four times in the twenty-four hours without any difficulty. I have never found any serious discomfort to be produced, although in large quantities it does not seem to be tolerated quite so readily as the carbon-dioxide and sulphuretted hydrogen mixture.

I am employing the oxygen enemata

in a variety of cases, in one of which, a case of phthisis, the beneficial results arising from the gas have been surprising. When the treatment was begun the patient had for some time had an evening temperature varying from two to three degrees above normal. The morning temperature was from 99° to $99\frac{1}{2}^{\circ}$. Within forty-eight hours after the use of the oxygen was begun the temperature fell to normal, and did not rise above 99° at any time, until about two weeks after the beginning of treatment, when the febrile symptoms reap-

peared as a result of an operation for the relief of a troublesome hæmorrhoid, following which the patient, by imprudence, contracted a slight cold.

In the use of the oxygen enema I have employed a new form of apparatus, which I devised some time ago, and which I described in a paper read before the late meeting of the Medical Association in Chicago. The especial advantages of this apparatus are convenience in use, precision in dose, and an easily-regulated and perfectly uniform flow—*Therapeutic Gazette*.

A CASE OF RECURRENT PARALYSIS OF THE MOTOR OCULI.

BY O. F. WADSWORTH, M.D.

The case which I wish to report appears to belong to a class characterized by a very distinctly defined group of symptoms. At intervals varying in length both in the individual cases and the same case, there occurs paralysis of all the branches of one oculo-motor nerve. The duration of the paralysis also varies. Always it is the same nerve that is affected, the other nerves remaining free. In most cases, possibly in all, the attacks are preceded, or, at least, accompanied by headache, confined to the corresponding side of the head, and chiefly localized in the frontal region.

Pauline and Frances, twins, were born of healthy parents, both of whom are still living and well. There were five other children in the family—two older, three younger than the twins. With the exception of a girl, the second after the twins, who died at eleven months of "congestion of the brain," all were healthy. In June, 1874, when the twins were nearly three years old, both had scarlet fever, and both had a discharge from the ear. Both seemed to recover well and to be healthy for some time afterward, although in both a slight

discharge from one ear continued, and Pauline had occasional headaches.

Although Frances is not the one whose case I present, it may be of interest to follow briefly her history, as it seems to have a bearing on the etiology of the other case. In September, 1877, when six years old, three years after the attack of scarlet fever, she began to complain of headache. The headache returned more frequently, and was of longer duration till the following December, when she had a convulsion. Three weeks later convulsions recurred, and the attacks became more frequent until, finally, they occurred almost daily. About the middle of March, 1878, after a convulsion, she complained that she could not see. A week later, March 21st, she was admitted to the nervous department of the City Hospital. On the same day I found well-marked optic neuritis and many white spots around the macula in both eyes. May 13th, Dr. J. Orne Green found the left membrana tympani much thickened and drawn in. She remained in hospital eleven weeks. The headaches and convulsions ceased, and the discs became atrophic. Sight

did not return. I saw her again February 24, 1879, in the out-patient department. She had had an occasional headache since leaving the hospital; but was otherwise, excepting her blindness, well, well-nourished, of good development, rosy-cheeked. She could only distinguish light from darkness. The pupils were large; the optic discs presented the appearance of atrophy following neuritis. Since that time I learned that she has been well, free from headache, and has had no discharge from the ear. She is now a pupil at the Perkins Institution for the Blind, in South Boston.

Pauline, the subject of the oculo-motor paralysis, after the scarlatina in the summer of 1874, had attacks of headache every month or two; in the early part of 1878, headache for several hours each day during three weeks. The monthly or bi-monthly headaches continued, and, on February 24, 1879, being then seven years old, she was brought to the hospital, with her sister, having suffered from headache daily for two weeks. The headache was referred to the right supra-orbital region; was said to commence every day about noon, to intermit about three, and to recur about five, and then continue some four hours. There was vomiting on the first two days. Appetite impaired; dejections and micturition normal; tongue clean; general appearance good; a slight discharge from right ear; swollen glands behind each ascending ramus of jaw. Dr. Green examined the ears, but my notes state only that he found inspissated pus in the right. The right eye was quite normal, its refraction nearly emmetropic; the left eye highly myopic, with a regular crescent of one-third to one-half the diameter of the disc.

March 29, 1880, she was seen again. Meanwhile, headache every month or two, usually ushered in with vomiting, and lasting from one to three days. When free from these attacks, she had appeared perfectly well. She was at

this time suffering from headache which had lasted a week, the pain referred, as always, to the right supra-orbital region. There was vomiting at the beginning of the attack. She moaned in her sleep. Tongue clean; dejections regular; pulse 100, temperature 98.8°. Five or six days after this attack began, ptosis and divergence of the right eye was noticed.

There was paralysis of the right motor oculi. In other respects, the condition of the eyes as before. Dr. Green again examined the ears, but my notes only describe the condition he found in the left. Its membrana tympani was much drawn inward and opaque from swelling, and there were several spots of ecchymosis. Its hearing was very fair.

At the end of February, 1887, Pauline came again to the hospital. She was now fifteen, well grown, and apparently healthy. Her headaches had diminished in frequency; for the last few years, she had had three or four each year, lasting from one day to two weeks, the more severe ones being accompanied by complete ptosis of the right eye and dilatation of the pupil. She had noticed no diplopia at these times, and no special change in the position of the eyeball. She stated that the ptosis and dilated pupil always continued till the headache was over, and then gradually passed off, so that at the end of a week or ten days they had entirely disappeared. The latter statement was probably incorrect, and I shall refer to it again. She had just recovered from a headache of two weeks' duration, accompanied by vomiting. There was a moderate amount of ptosis of the right eye, and nearly complete paralysis of all the other muscles, external and internal, innervated by the right motor oculi. Moderate divergence. The external rectus and superior oblique acted normally. Fundus of both eyes as before. She was seen again twice, at intervals of two or three days.

March 4th, there was a little more movement of the eye inward, upward, and downward; a little more action of the pupil and of the ciliary muscle. R., V.= $\frac{1}{10}$. L., with—14 D., V.= $\frac{1}{10}$. Field normal. She promised to come again, but did not.

April 24th, I visited her at her home. There was still a slight droop of the right upper eyelid, decided impairment of movement of eye upward, moderate impairment of movement downward and inward. The pupil did not react fully, and power of accommodation was imperfect for her age. She was, however, conscious of no defect of motion in the eye, nor aware that the pupil was affected. This was eight weeks after cessation of the headache, and it is probable, therefore, that previous paralyses had not passed off completely, as she had stated, especially as her father had observed that her eyes usually appeared not quite straight. That she should never have been troubled by diplopia is not surprising in consideration of the great myopia and imperfect vision of the other eye.

I was unable to see the mother, who was away at the time of my visit; but the father was positive that the attacks had diminished in frequency of late years—the last severe one having been in the previous July, an interval of seven months. Another fact of much interest I first learned from him, that with each severe attack, toward the end of the period of headache, there was a free discharge of ill-smelling fluid from the right ear, staining the pillow, and requiring syringing for some days. At my request and representation of the importance of treatment of the ear, she visited Dr. Green on May 6th. He found a large polypus completely filling the right meatus and removed it, but after two or three visits she ceased attendance.

These cases apparently occur but rarely. I have found but fifteen reported, with one exception already collected by Mauthner, although very

possibly some publications during the last year have escaped my search. And of these fifteen several are very meagerly reported—two in such a way that it seems by no means certain that they properly belong to this category. On the other hand, with one exception, reported by Gubler in 1860 (Mauthner has recently published notes of a case seen in Von Graefe's clinic in 1864), the earliest observation published was in 1882, so that it is probable that the number of reported cases will increase considerably in the immediate future.

The sex is not mentioned in one of the doubtful cases; of the remaining fifteen, including mine, four were males, eleven females.

In the two cases I have regarded as doubtful the side is not given; of the other fourteen, in seven the right, in seven the left motor oculi was affected.

The age at which the paralysis first appeared is not given in three cases, including the two doubtful ones; in one it occurred at eleven months, in one at eighteen months; the latest date, with one exception, is fourteen or fifteen years. The exception is a case briefly referred to by Buzzard, a woman of thirty, "subject for years to paroxysms of facial tic, recurring about every fortnight, and concentrated more or less definitely in the ophthalmic division of the fifth nerve." Within the last year or two each attack had been followed by partial paralysis of the oculo-motor, the paralytic condition lasting for a few days. One of the attacks he observed.

The varying length of the intervals between the attacks has already been noticed. In the case just cited it was shortest—two weeks. In Von Hasner's case the attacks recurred every month, and although preceding by two years the establishment of the catamenia, after their appearance were coincident with them. In most cases the interval was not a regular one, and lasted from a few months to a year. In Gubler's case there were two intervals of three years, then one of sixteen years before the

last attack, which was followed a fortnight after its commencement by death.

The period of headache varied, even in the same patient, in one case from one day to several weeks. And a similar difference appeared in the duration of the paralysis. Although the patients often are said to have stated, as in my case, that the paralysis passed off completely in the intervals, there is, I believe, in no case the definite statement that its entire disappearance was observed by the reporter. On the other hand, in several instances evident remains of the paralysis were observed to persist between the attacks.

With four exceptions, it is distinctly stated that pain resembling *mégrim* accompanied the attacks. Of the exceptions, Gubler's patient was seen only some days after the paralysis was established; the case is reported very briefly, but it is said that the man had all his life been subject to violent attacks of *mégrim*. Weiss's case is also very briefly reported (the patient was of little intelligence and unfamiliar with the German language); nothing is said of pain. The other two are the cases classed as doubtful. These were reported in a discussion which followed a report of a case by Snell. In one, by Ormerod, it is not clear that there were ever more than two attacks; the patient was an elderly woman; the Argyll Robertson symptom was present, but the knee-jerk not wanting. It is stated that there was pain in the region of the supra-orbital nerve, but nothing to suggest *mégrim*. Of the other, by Beevor, we learn only that he "had seen a similar instance in which exposure to cold winds were (*sic*) assigned as the cause." Perhaps both these cases had better have been omitted from the list.

Only in one case, that of Thomsen, was there observed contraction of the field of vision during the attack; and here the concentric contraction was found in both eyes, although of much less amount in the eye free from paralysis. This case was complicated

by epilepsy. The man was thirty-four years old; the recurrent paralysis began at the age of five; the epilepsy first appeared at thirteen years, and followed directly a fall from a ladder, which produced temporary unconsciousness.

The course of the disease is extremely variable. In some cases the duration of the paralysis and the intervals between the attacks seem to have continued the same; in some the attacks became more, in others less severe; in some again the periods of freedom became longer, in others shorter. There is no instance of permanent relief, perhaps because the time of observation was not sufficiently prolonged. Three cases terminated in death.

Different interpretations of the cause of the affection have been given. Some have considered it a purely functional disturbance, analogous to ordinary migraine. Others have supposed a tumor or inflammatory process at the nucleus of the nerve. Others again a pachy- or lepto-meningitis, an anomaly of the vessels, or a tumor at the base.

It seems to me very difficult to admit the theory of a purely functional disturbance, especially in view of the partial persistence of the paralysis noted in several cases between the attacks. There are also difficulties in the way of an assumption of a disease-process at the nucleus, lasting for many years, extensive enough to involve all branches of the nerve, subject to frequent exacerbations, and yet never affecting any other nerves, either of the same or opposite side. A basal origin appears more probable.

The results of autopsy in the three fatal cases also point to the base as the seat of the trouble. Gubler's patient died after a short illness with delirium running into coma. A plastic exudation surrounded the right motor oculi. There were other lesions, but this was the one which seemed best to explain the paralysis.

Weiss's patient died of tuberculosis of the lungs. The right motor oculi

was flattened, gray, and showed a tubercular enlargement at the point where it issued from the crus cerebri. The granulations did not extend into the brain substance.

Thomsen's case passed from his observation, and died about a year later of gangrene of the lungs. The end of the case was reported by Richter. There was a fibro-chondroma of the right motor oculi, which doubled its size, but had developed in such away as to separate the nerve fibres without destroying them.

In my own case the history points pretty distinctly to a direct connection between the aural disease and the paralysis of the third nerve. There can

scarcely be a doubt that a meningitis was set up by the aural disease in the twin sister. It seems here not unreasonable to suppose an exudation or thickening over a limited portion of the dura, which makes pressure on the motor oculi whenever a re-excitation of inflammation in the ear with retention of pus induces an increased vascularity or swelling. And when it is remembered that the third nerve penetrates the dura some little distance farther forward than the fourth and sixth, it is seen that such a limited thickening might readily be situated so as to affect the third nerve alone.—*Boston Medical and Surgical Journal*.

EXOPHTHALMIC GOITRE.

In a case of exophthalmic goitre recently reported by Jendrassik, beside the cardinal symptoms of exophthalmos, goitre, and tachycardia, together with tremor and restlessness, there were also noted paralysis of the ocular muscles, of the facial and masticatory muscles, and, to a lesser degree, of the muscles of the pharynx and of the upper extremity. The writer satisfied himself that this paralysis was nuclear, and not peripheral—an external ophthalmoplegia, due to disease of the nuclei in the medulla, a poliomyelitis superior (Wernicke), or, as he prefers to call it, poliomyelencephalitis superior. He questions whether the presence of the symptoms of exophthalmic goitre and of ophthalmoplegia are due to a mere coincidence. He cites other cases like the one reported, and suggests that exophthalmic goitre may be due to disease of the medulla or mesencephalon. Since three distinct and distant parts of the body are involved, the lesion must be located in some place where the different efferent nerves lie near one another. He con-

tests the theories that exophthalmic goitre is a general neurosis, or a lesion of the cervical sympathetic, and claims that it is due to a central lesion, located in the medulla or mesencephalon. The fact that only one or two of the three cardinal symptoms may be present is explained by supposing that only one or two nuclei are involved. Various cases of exophthalmic goitre show, moreover, that there are not infrequently symptoms present which point to a bulbar lesion—ophthalmoplegia, diabetes mellitus, etc.—and, in other cases, the existence of muscular atrophy shows that the nuclei in the cords are also affected. The writer, therefore, believes that in this disease there is a constant and circumscribed lesion of the gray matter in the medulla, about at the level of the nucleus of the facial. This theory is further corroborated by the experiments of Filehne, who found that injury of the anterior fourth of the restiform body was followed by the three cardinal symptoms of exophthalmic goitre.—*Boston Medical and Surgical Journal*.

EXTRACTS FROM THE ANNUAL REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES NAVY.

1887.

NAVAL HOSPITALS.

The request for increased appropriations for the preservation and repair of the several naval hospitals must be again repeated. These buildings have been in service for many years, and the work of restoring roofs and improving the systems of plumbing and drainage is urgently demanded.

At the naval hospital, Yokohama, Japan, the privilege accorded to the consul-general of sending sick and disabled men from the United States merchant service to be cared for in the hospital has been exercised throughout the year.

NAVAL SANITARIUM, PENOBSCOT BAY.

At the last session of Congress the sum of \$50,000 was appropriated "for the construction of a naval hospital and sanatorium and wharf for landing on Widow's island, Penobscot bay, Maine, said sum to be in full for all expenses of erecting and furnishing said sanatorium, including all necessary improvements on the island."

The building will be completed, weather permitting, by December 15, 1887.

MUSEUM OF HYGIENE.

On July 1 the Museum of Hygiene was removed to a large and commodious building in New York avenue, near the Navy Department, where it is well established, with room for its increasing collection.

Dr. Turner's report is presented herewith.

Tentative experiments have been made at the museum upon the steel used in the new guns for the Navy in order to determine the chemical value of the steel.

These examinations have been limited to the determination of the amount of carbon, silicon, phosphorus, and sulphur existing in the samples presented. The

investigation is interesting and important, as the presence of these bodies is known to affect the physical properties of steel.

MEDICAL CORPS OF THE NAVY.

The condition of the Medical Corps of the Navy, which was represented to you last year and commended in your yearly report to the attention of Congress, urgently calls for legislative action. The numbers are still diminishing. There are now twelve vacancies for assistant surgeons. The loss of members in the active list of the corps during the year amounted to nine officers; and only six assistant surgeons were appointed, one of whom has since resigned to enter the Medical Department of the Army.

A bill to improve the condition of this department of the Navy has been prepared to be submitted for your approval on the meeting of Congress.

INSANE OF THE NAVY.

There were sixty-nine patients belonging to the Navy treated in the Government Hospital for the Insane, in the District of Columbia, for the year ending September 30, 1887.

Remaining in hospital September 30, 1887	60
Admitted during the year ending September 30, 1887	9

Total under treatment	69
Discharged during the year:	
Recovered	6
Improved	1
Died	4
	—11
Remaining in hospital September 30, 1887:	
Officers	7
Enlisted	51
	—58

In consequence of the inability, from the want of accommodation, of the Asylum for the Insane at Napa, Cal., to receive any longer the insane patients from the Navy, the Bureau has directed the transfer of all of the insane of the Navy on the Pacific coast to the Government asylum near Washington, D. C.

REPORT UPON THE MUSEUM OF HYGIENE.

By T. J. TURNER, M. D., DIRECTOR OF THE
MUSEUM.

Herewith is transmitted the second report upon the Museum of Hygiene under its present direction.

The library has not been increased to any great extent, and the want of space for the exhibition of sanitary appliances has retarded inventors from forwarding such new inventions as present the more recent scientific results in the mechanics of sanitation. The greater number of such mechanical devices now on exhibit relate to house sanitation.

The clerical duty involved in the daily routine of the museum has not permitted personal work upon many questions in hygiene demanding experimental investigation. The index catalogue of the library has been attended to so far as possible. The services of a clerk to perform the duty of a librarian has become a necessity. The increase of the chemical work demands an increase in the pay of the skilled assistant now employed in the laboratory.

The removal of the museum in its entirety to the present location necessarily involved the arrest of all work then on hand, and all projected work is still in abeyance, until the new arrangement of the establishment shall have been perfected to such a degree that the usefulness of the museum may not be impaired. The number of visitors to the museum has steadily increased, and there is much of interest displayed by plumbers, sanitary engineers, and architects in the collection and the library.

AIR.

During the past year there has been but little advance made in the chemical examination of the air for sanitary purposes. The determination of the amount of CO_2 still remains as the most convenient factor upon which organic impurity is assumed. Modifications of the apparatus for the determination of CO_2 by Pettenkofer's method frequently appear in the illustrated sanitary journals. It is a known fact that the amount of CO_2 in the air, usually stated as 4 volumes per 10,000, is slightly in excess of the real amount as determined by more recent research. This excess, however, is not so great as to impair the value of the CO_2 estimation as the measure of respiratory impurity. No new investigations as to the organic impurities in the air have come under observation.

WATER.

The well-decided facts of the water carriage of the poison of cholera, and that in all the ports visited by our naval vessels the water supply to vessels is more or less to be suspected, and that following the use of distilled water on shipboard there has been a notable decrease of abdominal fluxes, even in some instances to total immunity from such disease action, it seems therefore advisable that some general order regarding the use of distilled water on shipboard should be issued. The constant iteration of this may at last awaken some naval authority to its importance. It is well known that the tests required from the medical officer, hurriedly made when "the water boat is alongside," are of no decided value in determining the safety-mark of potability.

There has been added to the exhibit a Baird's distiller and aëerator. This apparatus is, so far as can be ascertained, the most useful of its kind for use at sea, and it is equally adapted for such purpose on shore. It can readily be attached to an ordinary kitchen range, and would afford an ample supply for all household purposes.

FOOD.

The following table of the composition of foods relates to the ration, and is but complementary to the note on foods in the first report:

Composition of foods.

Articles.	Water.	Albumi- noids.	Fats.	Carbo- hydrates.	Salts.	Other constituents.
Bread.....	8.	15.6	1.3	73.4	1.7	
Biscuit.....	40.	8.	1.5	49.2	1.3	
Soft.....	15.	11.	2.	70.3	1.7	
Corn-meal.....	14.	11.1	8.1	65.1	1.7	
Corr-hominy.....	13.5	9.9	6.7	64.5	1.4	Cellulose, 4. 0.
Oat-meal.....	15.	12.6	5.6	63.	3.	
Rye.....	15.	8.	2.	69.5	1.8	Sugar, 3. 7.
Wheat.....	13.56	12.43	1.7	70.55	1.79	
Pork (salt).....	44.1	26.1	7.	—	22.8	
Beef (salt).....	49.1	29.6	.2	—	21.1	
Roast beef.....	54.	27.6	15.45	—	2.95	
Canned mutton.....	(*)	(*)	—	—	—	
Chicago corned beef.....	40.	40.	15.	—	5.	
Brawn.....	(†)	(†)	—	—	—	
Ham.....	27.8	24.	36.5	—	10.1	
Bacon.....	15.	8.8	73.3	—	2.9	
Sausage.....	(*)	(*)	—	—	—	
Fish (fresh): { From.....	75.	10.	1.1	—	1.	
{ To.....	85.	19.	13.8	—	1.8	
Fish, dried (cod).....	78.	18.1	2.9	—	1.	
Beans.....	14.76	24.27	1.61	56.10	3.26	
Pease.....	15.	22.	2.	53.	2.4	
Rice.....	10.	5.	.8	83.2	.5	
Apples, fresh.....	86.28	.08	—	6.45	.8	Malic acid, .06; woody fiber, 3.8.
Peaches, fresh.....	85.	.46	.61	1.6	.5	Cane sugar, 7.6—to be added to carbo-hydrates.
Raisins.....	—	4.1	—	63.	2.3	
Fresh currants:						
Red.....	85.27	.68	—	6.44	.57	
White.....	84.8	.30	—	7.69	.56	
Figs.....	24.94	13.3	—	43.9	1.77	
Dates.....	21.6	10.93	—	56.41	1.5	Cane sugar, 56.41; oil, .19; pectin, 6.99; woody fiber, 2.38.
Butter.....	6.	.8	91.	—	2.7	
Tomatoes.....	39.8	1.4	—	6.7	.8	Cellulose, pectose, 1.3.
Coffee.....	.36	12.03	8.3	1.84	5.17	Cane sugar, 1.84; caffeine, 1.06; gum, tannin, 26.28; cellulose, 44.96.
Tea (black).....	11.56	15.55	—	—	5.82	Tannin, 15.24; theine, 2.53.
Tea (green).....	9.87	24.39	—	—	5.33	Tannin, 18.69; theine, 2.79.
Cocoa.....	6.12	18.	—	13.	3.6	Cocoa butter, 50.
Sugar.....	8.	—	—	96.5	3.6	Cane sugar, 96.5.
Pickles.....	(*)	(*)	—	—	—	
Molasses.....	27.3	—	—	67.4	2.6	Cane sugar, 47; extractives, 27; glucose, 29.4.
Vinegar.....	37.6- 96.3	—	—	—	—	Acetic acid, 3 to 10; extractive, 1.7 to 3.4.
Beef (fat).....	45.6	15.	34.8	—	4.6	
Mutton (fat).....	39.7	11.5	45.5	—	3.5	
Veal (fat).....	62.3	16.6	16.6	—	4.5	
Pork (fat).....	38.6	10.5	49.5	—	1.4	
Poultry.....	74.	21.	3.8	—	1.2	
Vegetables.....	(*)	(*)	—	—	—	

* Composition variable.

† Same as bacon.

Some discussion upon the bulk of the ration has been had of late, and the tendency is toward decreasing the bulk, as compared with weight, as a saving in the means of transportation.

Elsewhere the writer, in commenting on the naval ration, has stated that the ration in port represented 32.49 ounces average, and at sea 24.75 ounces average of water-free food. It is to be stated that this result is calculated from the chemical composition of the food, and that long before this weight could be obtained by any process of dessication physical changes occur, rendering the food unfit for nutritive purposes. It is a matter of every-day observation on shipboard that dried vegetables especially do not regain their original sapidity when treated with fresh water, added for the purpose of restoring them to their normal condition.

The fashion for the day in the matter of foods is in the use of the so-called peptonized, malted, soluble, etc., foods. Their use belongs, in a great degree, to the therapeutics. Some experiments have been made in the museum to determine from a physiological basis the nutritive values of foods. As the investigation progressed much was learned of the difficult nature of the examination, wherein the value of each condition had to be determined as influencing any series of observations.

Having in other papers upon matters connected with naval hygiene considered the ration, it is proposed to offer some suggestions concerning the distribution of the food as well as the rearrangement of the meal hours more consonant with the physiology of the digestive act; and, therefore, more conducive to the health of the crew. At present the meal hours are as follows:

Breakfast at 8 A. M.; dinner at 12 noon; supper at 5 P. M., and upon "turning out an additional ration of tea or coffee and sugar." It is evident that the men

are from 5 P. M. until 8 A. M., 15 hours, without food, and that the bulk of the food is ingested in the remaining 9 hours of the day. Now, the digestive act is completed, in so far as the finding of the remains of the food in the stomach is concerned in from 2 to 3 hours (Beaumont on Digestion), so that the men in the mid and morning watches, often accused of "loafing" and a want of activity, affected with lassitude and a restless wakefulness, akin to morbid vigilance, are in this condition but giving physiological expression to the wants of the economy requiring food stimulation. This condition is a powerful factor in predisposing to disease, and the cumulative effects are seen in the depressed vitality of the sailor later on in his life.

Considering the variety as well as the bulk of the ration, a proper distribution, from careful study, would be as follows: Dividing the whole ration into 9 parts, assign 3 parts for breakfast, 4 parts for dinner and 2 parts for supper—"that is to say, breakfast to restore the waste, dinner to support during the hours of active toil, and supper to carry on the functions of repair and secretion." (Letheby.) This division, however, does not consider the fact of the loss of sleep in the night watches at sea; but as there is the turning out meal, and a suggestion as to the mid-watch, it is believed to be correct both from a chemical and physical view.

Again, it is known (Smith, "Cyclical Changes in Health and Disease"), that after the indigestion of food, pulsation, respiration and temperature rise, indicating more active functional work in the digestive act, and that this rise occurs within from two to three hours after a meal. It has also been observed that pulsation, respiration and temperature are lowest from 3 to 6 in the morning. It would appear, therefore, that the ration on turning out has a physiological foundation.

Reasoning from these facts, together with the known physical relations of

food to work, it is suggested that by shifting the dog watches from 12 to 2, and from 2 to 4, the following arrangement of the meal hours could be made which does not interfere with the routine work of the ship: Continuing the ration as directed by law upon turning out, to have breakfast at 8 A. M., dinner at 2 P. M., and supper at 8 P. M., reserving for the mid-watch, as they go on duty, a portion of the ration of tea or coffee and a biscuit.

Thus the food of the sailor is served out more in accord with physiological requirement, the health and energy of the men are conserved and correlated, there is more immunity from disease-influence, and so their efficiency for work is kept at its best standard.

As not foreign to this subject, the experience of a British officer at Gibraltar should be mentioned. Giving his troops a supper at 8 P. M., it was observed that a manifest decrease in the number of cases of drunkenness followed this salutary measure. The stimulus of food had supplied the desire for rum.

There are but few instances of any variation from the ancient methods of cooking meals on shipboard. The "coppers" still retain the name, although that metal has long been disused in the construction of the galley. The preference of the writer has already been given to the "improved galley" for use in ships of war, but this short sketch would be incomplete without some hints as to the personnel of the cooking force.

To secure economy, cleanliness, comfort, and so aid in the maintenance of the health of the crew, the following suggestions are offered:

As one ration in four may be commuted, and as the money value thereof is expressly directed to be expended "for the sole purpose of affording a means of adding to and increasing the variety of food provided by the Government"—establish the rating of ship's steward—who should be di-

rected to make purchases, when in port, of such articles as the messes may require; to post, weekly, for the information of the crew, the price current of the articles purchased, and be held responsible for the moneys intrusted to his charge for such purposes. Retain the present billet of ship's cook, abolish the present system of mess cooks, and make a rating of assistant cooks, in the proportion of one to every thirty men of the ship's complement. Build a pantry, doing away with the cumbersome mess chests that now lumber up the decks, stow in the pantry all mess gear—"pots, kettles and pans," when not in use. Let the assistant cooks keep the pantry clean, spread the mess gear for meals, gather up the same after meals, cleanse and re-stow them in the pantry, attend to the serving out of the ration, the preparation of the food, as well as its distribution at the appointed meal hours, etc.

These suggestions are departures from old customs, but are warranted by the advancing study of naval hygiene.

In the matter of poisoning from canned food, the following may prove instructive:

The results of the micro-chemical observations made at the museum upon the following articles received from the hands of Passed Assistant Surgeon C. W. Deane, U. S. Navy.

Two wide-mouthed glass bottles—one stated to contain "canned ham," suspected to have caused symptoms of poisoning, and one stated to contain a sample, unused, from the same invoice as the suspected ham.

It was also stated that the symptoms of poisoning occurred about two and a half hours after the ingestion of the suspected ham.

A portion of this meat, after twenty-four hours' immersion in alcohol sp. gr. .820, was treated with HCl (one part to ten parts of water), in a porcelain capsule, over a water-bath, for two hours, at a temperature of 37.5°C., and then filtered; a portion of the fil-

trate was examined by the usual tests, and gave no reaction for any metallic substance.

From the odor there was no evidence of any putrefactive change. The fat and muscular tissue, however, were readily separable, the connective tissue easily breaking down under slight pressure of a glass rod. The muscular fiber also readily separated into small bundles, recalling the "boiled rope yarns" of canned meats, so well known to messes on shipboard. Morache ("Traité d'Hygiène Militaire," 1886) states that the frequent accidents which so often follow the ingestion of salted meats badly conserved have no other origin than from the formation of septic alkaloids from the albuminoid principles of the meat. Accepting these appearances as those of a retrogressive change and as evidences of the want of the preservation of the food by the "canning method," the following experiments were instituted for the isolation and detection of such bodies:

A portion of the acid solution was treated with a solution of *sodic hydrate* until slightly alkaline. A slight precipitate appeared, which, under the microscope, was found to be composed of minute crystals of sodium chloride.

Another portion of the acid solution was treated by ammonia water and *ether*; the ethereal solution was separated and allowed to evaporate spontaneously, then treated with a solution of osmic acid, and examined under the microscope; fat globules only were apparent.

Another portion of the acid solution was treated by ammonia water and *chloroform*; the chloroform solution separated and allowed to evaporate spontaneously, and the residue examined under the microscope: crystals of ammonium-chloride only were found.

Another portion of the acid solution was treated by ammonia water and *amyl-alcohol*; the amyl-alcohol solution was separated and evaporated over a

water-bath, the residue examined under the microscope: crystals of sodium-chloride only were found.

Another portion of the acid solution was treated by ammonia water and *dilute alcohol*; the dilute alcoholic solution obtained was evaporated over a water-bath and the residue examined under the microscope: crystals of ammonia-chloride only were found.

A watery solution, obtained by digesting a part of the suspected matter in distilled water over a water-bath for two hours, treated with ether to remove fatty matters, and the separated *aqueous solution* examined, after evaporation by a gentle heat, under the microscope, presented crystals of sodium-chloride, and no trace of any other matter.

Upon testing a portion of this aqueous solution by potassic-mercuric iodide for organic matter, there was no reaction.

A portion of the aqueous solution was rendered acid by dilute sulphuric acid; to a part of this solution was then added a few drops of a freshly prepared solution of potassic-ferridcyanide, and then tested by a dilute solution of ferric-chloride—no reaction showing that any reduction had taken place from the presence of organic matters, especially the ptomaines, was evident.

No evidence of trichina were found. The microscopical examination of sections of the suspected and unsuspected meat was made by Surgeon C. H. White, U. S. Navy, and no departure from the normal histological appearance in meat was observed.

In so far as the culture-experiments upon these substances have progressed under the management of Passed Assistant Surgeon G. Arthur, U. S. Navy, no generic forms of zymogenic bacteria have been found, after "cultivation" at a constant temperature of 35°C. for five days in sterilized test-tubes.

From the facts obtained by the chemical examination it is concluded—

1st. That the phenomena presented in these cases of poisoning can not be ascribed to any *inorganic poison*.

2d. That the examination for the alkaloidal bodies, resulting from slow chemical changes in the suspected meat, does not reveal their existence by methods used for their isolation. In other words, no *organic poison* was detected by the methods described.

These processes were arranged to capture, so to speak, any of these bodies by their solubilities or insolubilities in the different menstrua used, and the processes are alike applicable to the use of other acids, organic or inorganic, and to other menstrua, such as benzole, petroleum-ether, etc., in like examinations.

Although the entire examination has resulted as stated, it is deemed proper to present all the processes used from which the conclusions have been obtained.

CLOTHING.

An extended examination upon the clothing furnished the crews of naval vessels as to its hygienic value was inaugurated and placed under the charge of Passed Assistant Surgeon G. Arthur, U. S. Navy. It has not been completed to the extent at first lined out, but enough has been determined to make questionable some of the published results of the investigations, heretofore accepted as positive, of Coulier and Hammond.

LIGHTING.

Of the hygienic value of the electric light on shipboard and its manifest advantages no reports have been received at the museum.

DISINFECTANTS.

Examination of various proprietary articles of this character reveals the fact that they are mixtures of well-known disinfectants.

An investigation as to the value of iodoform as an antiseptic was commenced and abandoned for want of the necessary time needed for such investigation.

The usual chemical, microscopic and physical examinations have been carried on as required, and this report would be incomplete if there was failure to acknowledge the able aid rendered the

Director by Surgeon C. H. White and Passed Assistant Surgeon G. Arthur, U. S. Navy, on duty at the museum.

GENERAL CONSIDERATIONS.

Upon the tag marking the price of peace, in our modern civilization, is emblazoned the trade-mark of war—a gun; and whilst attention has been directed more toward the management of masses of men, observant medical men have quietly been considering the results of the first contact of bodies armed with modern instruments of warfare. Granting two opposing bodies—armed with the long-ranged rifled gun, the rapid firing machine gun and the magazine rifle in the hands of the trained soldier—the military medical officer is, of necessity, brought to the front to render the first aid to the wounded. And here the ambulance system should be considered in all its relations. It is not proposed to enter upon a study of the methods suggested for the care of the health and comfort of the wounded, but some remarks as to the status of the medical military officer arise in this connection, and are pertinent to this report. It is fair to assume that the number of wounded requiring aid will be vastly increased over the number of wounded in previous conflicts, and no ambulance apparatus for rendering such aid, be it ever so simple, can be carried in such number as to hamper in the least degree the movements of the opposing forces. Even now the propriety of incumbering the soldier with a few bandages is a subject of discussion, for the drift in all these matters is to reduce to the minimum all the incumbrances to rapid movements. All this applies to movements on land, yet the difficulties are multiplied for the naval medical officer. It needs no stretch of the imagination to depict a landing party, covered by the guns of a vessel, handled by trained men, exposed to a fire from the shore from equally trained gunners. To such a fire the medical officer is as much exposed as his leader. Nor is this all; in times of peace he has to be prepared for war—an incident in the naval life. The steady additions to the etiology of

disease requires him to be always on the alert, to practically apply his knowledge, under the varying conditions of climate and shipboard life, to the prevention and arrest of disease, by attacking its causation.

A FEW FACTS CONCERNING THE RECENT PREVALENCE OF WINTER DIARRHŒA.

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I have thought that our society might well have before it a few facts which I have been able to glean concerning the recent prevalence of diarrhœa during the winter months. The subject was first referred to in a paragraph in a recent number of *The Lancet*, which also contained a letter from Mr. C. H. Taylor of the West London Hospital, stating that a diarrhœa was prevalent in Fulham, Chiswick and Hammersmith; and the *British Medical Journal* of the same date published a communication from Dr. Norman Kerr, telling the same story for the neighborhood of Regent's Park. Later, other correspondents bore witness to the existence of epidemic diarrhœa in St. James', Bayswater, Marylebone, Clapham, Lewisham, Penge, Kingston-on-Thames, Kent, and even as far from London as Lancashire and Aberdeenshire. The reports of the symptoms from which the patients suffered fairly well agreed. In all cases there was diarrhœa, in the majority abdominal pain, vomiting, cramps in the limbs, great depression, and a symptom of particular interest—high temperature. In a few, the fact was noted that the patients also suffered from hæmorrhage from the bowels. In many instances, the sufferers were attacked in the night, and often in groups, suggesting community of cause. We may assume therefore, in the first instance, that the epidemic, wherever it manifested itself, was of the same nature, and that some of the symptoms to which it gave rise were those not usually met with in ordinary diarrhœa, and that, regarding it as diarrhœa, the disease occurred at an unusual period of the year. We are led, moreover, to conclude that, not-

withstanding the area which its operations covered, it is in the highest degree probable that the cause in each locality was the same. And I may go further, and say that this cause was not related to any climatic condition; for, if we examine the dates of outbreaks in public institutions situated near to each other, and therefore subject to the same climatic conditions, we do not find that these dates exactly correspond; and, further, some institutions also in the neighborhood of those which were invaded escaped altogether. The cause must, nevertheless, be one capable of operating over large extents of country.

My own opportunities for learning some particulars of this illness, were practically limited to its behavior in a special hospital in Central London, which I first visited for that purpose on January 27th. I was informed by the senior house-surgeon, who had taken great interest in the matter, that half the inmates of the institution, about two months before, had been attacked suddenly with diarrhœa, the patients alone suffering and the staff altogether escaping. On January 25th, the incident repeated itself, nearly fifty persons on this occasion being attacked. The distribution of the disease in the hospital is of importance; for again, on the second occasion, the patients were, with trifling exceptions, the only sufferers. The patients are resident in wards situated on three floors; those on each floor taking their meals mostly together. On the first floor are beds for thirty women, on the second floor beds for forty men, and on the third floor twenty-six beds, twenty-one of which are occupied by men and the rest

by children. Of the patients resident in the hospital at the time of my visit, I found that on the first floor there were attacked on January 24th (Monday), in the morning one, in the evening three; on the 25th (Tuesday), in the morning two, in the evening six; on the 26th (Wednesday), in the morning one. On the second floor there were attacked on January 24th (Monday), in the evening one; on the 25th (Tuesday), in the morning eighteen. On the third floor there were attacked on January 24th (Monday), in the evening five; on the 25th (Tuesday), in the morning six. Or, considering those on the different floors together—on Monday, January 24th, ten were attacked; on Tuesday, 25th, thirty-two; and on Wednesday, the 26th, one; the majority of the attacks occurring while the patients were in bed, at some period of the night.

The most striking circumstance in the outbreak is the almost complete immunity enjoyed by the staff. Of twenty-two persons engaged either in attendance upon the sick or in domestic duties, but two suffered from diarrhoea, and these were nurses, both of whom were attacked in the early morning of Tuesday, January 25th.

To enable the exact incidence of the disease upon the patients to be determined, and for the purposes of further inquiry, I ascertained the condition of health of those who had been discharged from the hospital for some time previously, and in this manner elicited information that no patient who left the hospital before January 24th was attacked. On Thursday, January 20th, three patients were discharged, and on Friday, the 21st, three; on Saturday, the 22d, six—none of whom suffered. On Sunday, the 23d, no patients were discharged; on Monday, the 24th, six patients were discharged, three of whom were attacked early the following morning at their own homes. Whatever cause, therefore, gave rise to diarrhoea probably came into operation after the patients left on January 22d—*i. e.*, after mid-day dinner on that day. Of patients newly admitted into the hospital, three

admitted on January 20th were each attacked; of two admitted on the 21st, one was attacked; and of three admitted on the 22d, two were attacked. None were admitted on Sunday, January 23d. Five were admitted on January 24th, all of whom escaped. Two were admitted on January 25th, both of whom escaped. The cause of the outbreak, therefore, probably ceased to be operative before the patients were admitted on Monday, January 24th—*i. e.*, the cause was operative only sometime between mid-day on Saturday, January 22d, and mid-day on Monday, January 24th.

It becomes important, therefore, to ascertain the effect of this cause upon the patients *who were in the hospital at this particular time*—changes by admissions and discharges having taken place before my visit. There were sixty patients in the hospital between January 22d (Saturday), mid-day, and January 24th (Monday), mid-day, of whom forty-three were attacked with diarrhoea, either within the hospital or immediately after their return home, giving a percentage of 76·6. Of the staff I have already said there were twenty-two, of whom two were attacked, or 9 per cent. This difference is so great that I was compelled to regard the condition causing the diarrhoea as one with which the patients must be specially related; and this view was strengthened by the fact that the two affected members of the staff were nurses, who may likely enough have come into accidental relation with this condition.

At this period I was not aware that the disease was prevalent in other parts of England, and I was led to examine the incidence of attack upon patients taking milk, water, and other articles of food. Of those who drank unboiled water at their meals there were thirty-three, of whom twenty-five were attacked, or 75·7 per cent., being practically identical with the general average. Of those who drank no water except that which they had in their tea, and which had therefore been boiled, there were twenty-six, of whom twenty-one were attacked, or 80·7 per cent. Drinking water or abstaining from water did not, therefore, affect the

probabilities of attack. Again, forty-four patients drank uncooked milk instead of beer, and of these thirty-four were attacked, or 77.2 per cent.—a proportion equal to the general average. Of fifteen patients who took no milk except in tea, thirteen were attacked, or 86.6 per cent. Drinking or abstaining from milk cannot, therefore, be said to have affected the probabilities of attack. Nevertheless, the large proportion of attacks among patients, and the immunity enjoyed by the staff, strongly indicated some article of food as responsible for the occurrence. The senior house surgeon was good enough to prepare for me a complete list of all the articles of food consumed in the hospital. I may at once eliminate from further suspicion the following: Milk, because the supply was common to staff and patients, because of the evidence already adduced, and also because the same farms supplied milk to another large hospital, which remained free from disease. Water, because it was consumed by staff and patients, and because of the evidence already adduced. The possibility that the local contamination of a cistern was responsible for the outbreak may be set aside by consideration of the fact that separate cisterns supplied the different floors. Tea and salt may be eliminated, because the supply was common to staff and patients. Meat and potatoes, because the supply was common to staff and patients. Beef-tea, because it was only consumed by a few patients. Beer, because those who did not drink beer were also attacked. Bread and sugar, because the same articles consumed by the patients were also supplied to the servants, none of whom were attacked. Rice, because no fresh supply had been received for a long time previously, and the children had been eating rice daily without injury. I may also refer to the fact that other institutions and other parts of the country were invaded, having different milk, water and meat supplies.

There is but one article of food I am unable to exculpate; and, to the possibility of this being the cause of a widespread outbreak, I would desire to direct

the attention of the society. I refer to butter, which in the method of its distribution in the hospital in the first instance raises a presumption that it may have been concerned in producing this curious disease. Three qualities of butter were supplied to the institution—(a) that provided for the medical officers and matron, (b) that provided for the nurses and servants, and (c) that provided for the patients. The patients' butter is received on every week-day, at 10 A. M., and is used for tea and supper the same day, and for breakfast the following day, on Saturdays the supply being increased to last until breakfast on the following Monday morning. If we assume that the butter received for the patients on Saturday, January 22d, possessed purgative properties, there is ample explanation of the illness of all the patients who suffered from diarrhoea. That all were not attacked at the same time, and that some escaped, may be due to some unequal distribution of the active principle throughout the butter, or perhaps to some difference in the quantity consumed. There remain the attacks of two nurses, who, it may be mentioned, suffered less severely than the patients from this malady. I have no other explanation to offer on this point than that they must have eaten some portion of the bread and butter not required for the patients. Those who are intimate with hospital life will know that this is no unusual event. Thus far as to this particular hospital. The difficulty which stands in the way of the acceptance of this theory is the fact that other institutions—many persons not living in institutions, and other parts of the country have also shared in the prevalence of diarrhoea.

English butter is made upon the farm on which the milk is produced, and the few pounds which each farm is able to contribute could not be sufficiently widely distributed to give rise to an occurrence such as that we have under consideration. But the butter which I have been led to suspect was that provided for the patients, and low-priced butters come largely from abroad. In other countries butter is not always

manufactured on the farms on which the milk is produced; but large numbers of farms send their milk to central depots, where, I am told, the milk of hundreds of farms is mixed together, made into butter, and coloring matter added, which always gives to it a uniform color and flavor. This is sent over in enormous quantities to the English middle-man, who distributes it to local vendors, from whom it reaches the consumers. In this manner any capacity which the milk from any farm might possess to cause diarrhœa would, if due to an organism, have the possibility of being multiplied by admixture of this milk with other milk, and thus its effects might be felt in many places. Or, perhaps, the method of treatment of the butter in some central depot might be concerned in conferring upon it this power, or possibly by the development of some chemical poison it might have acquired this special property. The symptoms of the sufferers, indeed, remind us of the observations of Dr. Victor C. Vaughan, of Michigan, concerning the effects of a ptomaine he found in cream. It is, under any circumstance, conceivable that butter which possesses this property might be distributed through different channels over a large area of country, and thus induce diarrhœa in one district or institution at one time and in another at the same or at a different time.

I have not had the opportunity of extending my inquiries sufficiently to

enable me to thoroughly sift the evidence that could be obtained outside the institution with which I was concerned. I therefore prefer to leave the subject where it is; but I may mention incidentally that one large hospital, which also suffered heavily, received its butter from the same source as that which came under my own observation, and that another suffering very partially required the patients to supply their own butter—thus giving opportunity for it to be procured from many sources, of which perhaps one only was identical with that under suspicion. This difference in the method of supply may perhaps account for the smallness of the number of persons affected in some institutions. I do not wish now to do more than urge—1st, that the nature of the epidemic of which we have recently had experience points to an article of food as the cause; 2d, that the facts learned at one institution, where they were carefully observed, point especially to butter; and, 3d, that any objection to this theory, which is based on the method of distribution of butter made on English farms, falls to the ground when the distribution of foreign and of artificial butters is considered. In conclusion, I would desire very cordially to thank Mr. E. Treacher Collins, whose active assistance has enabled me to ascertain the facts upon which this account is based, and to whose accurate observation I am very greatly indebted—*London Lancet*.

PARASITIC INFECTION FROM DOGS.

Dr. Ollivier, of Paris, is quoted as follows on this subject by the *British Medical Journal* of November 5, 1887:

"The number of hydatid cysts in a country is in direct proportion to the number of dogs. Facts seem to confirm this theory; for they show that there are more hydatid cysts in hill districts than in the low lands, in the country than in towns. The author cites several cases observed by him, in

which the cyst was plainly traceable to previous intercourse with dogs, in patients fond of these animals. A long period, sometimes years, may elapse before the echinococcus develops itself, but the cause is none the less evident. Children are always fond of dogs, and like to play with them, and these pets are affectionate and caressing, and have a bad habit of licking; in this way the animal's tongue may

prove a ready means of propagation of the eggs of *tænia*. It is also possible that they may be inhaled, when, in very dry weather, these eggs are carried about by the wind. This would explain certain cysts in the respiratory organs. The penetration into the human organism, however, generally takes place through the digestive organs by means of salads, green vegetables, fruit and other aliments imperfectly cleaned; or by water from ponds, reservoirs, or wells contaminated by dogs resorting there to drink. The author points out the precautions which should be taken

to diminish the danger of propagation of this parasite: greater care in the choice and cleanliness in the preparation of certain articles of food; avoidance of unfiltered water, and particularly of stagnant water of any kind; and, above all, less intimacy with dogs—particularly in the case of children, who should be carefully watched. He condemns altogether house dogs of all kinds, as being a source of continual danger as regards the propagation of the eggs of *tænia echinococcus*.”—*Exchange*.

THE MENTAL DIFFERENCES BETWEEN MEN AND WOMEN.

Our social system hinges so much upon the relative interests, claims, and capacities of men and women, that too much assiduity cannot be employed in endeavoring to mould public opinion upon a question whose issues are so vital and far-reaching. The Mohammedan regards woman as probably soulless. Needless to add, he makes her a slave. The modern movement for promoting the higher education of women would have been impracticable but for the steady growth in the public mind of a conviction that this enlarged culture was not only feasible but an obvious duty. The miserable travesty of education which was formerly thought good enough for young women—the scraps of history and mythology, the music, dancing, and deportment, so long the staple pabulum at “finishing” schools for young ladies—could have been tolerated only by a generation which had accepted without question or examination the low views of female intellectual power prevailing in a former epoch. Hence such questions as those handled so ably by Mr. Romanes, in his paper recently published in the *Nineteenth Century*, are no mere academic discussions, but problems pregnant with conclusions of immense practical importance.

Mr. Romanes cannot be reckoned as a partizan of either side. He sums up,

as he himself admits, “with almost brutal frankness,” the various intellectual deficiencies of women, real or supposed, but adds that “these elements of weakness are in chief part due to women as a class not having hitherto enjoyed the same educational advantages as men.” We are glad of this admission, which has a very vital bearing upon current controversies. The opponents of the higher education of women are singularly unfortunate in their line of argument when they dwell with apparent satisfaction upon the superiority of men in depth of insight, comprehensiveness of view, originality, creative faculty, and judgment. Granted that in these respects women are, as a class, somewhat inferior to men, the legitimate deduction is not that feminine culture is useless or futile, but rather that it should be encouraged by every means in our power in order that women may, as soon as possible, make up the leeway consequent upon centuries of apathy and of neglect of their intellectual claims.

We are somewhat surprised that Mr. Romanes should attach such paramount importance to the fact of the female brain weighing, on the average, about five ounces (one-tenth of the whole) less than the male. We are hardly prepared to admit either of the premises upon which an argument can be founded for regard-

ing this deficiency as a necessary sign of intellectual inferiority. These premises are, first, that size of brain is a fair gauge of mental power, and, secondly, that the difference of size between the brains of men and women is greater than might be expected from the difference between their bodies. As regards the first point, cerebral physiology is still in too nebulous a condition to enable us to say more than that, as a general rule, idiots have small brains and men of distinguished capacity large brains. When we put aside the *monstra*, either of excess or defect, it is by no means clear that the possession of a few ounces of brain matter above the average is a fair gauge of intellectual pre-eminence. Further, the remarkable conclusions of Ferrier and his school have established a surprising closeness of relation between the brain substance and the muscular system, while they have shed very little light upon the *nexus* between cerebral matter and intellect. It is a very fair question for investigation whether the smaller brain of the woman is not in large part due to her comparative muscular inactivity.

As regards the second point, namely, whether the smaller brain of the woman is not simply part and parcel of her smaller body, we are by no means satisfied with Mr. Romanes' rather dogmatic statement that the deficiency of five ounces is "proportionately a greater difference between the male and the female organisms, as a whole." It is a very open question whether the body weight of the average man does not exceed that of the average woman by fully one-tenth.

The progress of female education during the brief period in which it has been intelligently and thoroughly cultivated is surely very striking. Women are everywhere justifying the hopes of their champions, and disappointing the gloomy

vaticinations of their opponents. Their university successes have exceeded the most sanguine anticipations, and such a brilliant achievement as that of Miss Ramsey, at Cambridge, this year, is enough to cause grave questionings to believers in the natural and inherent intellectual inferiority of women.

While we thus take exception to some of Mr. Romanes' lines of argument, we are thoroughly with him in his condemnation of the fatuous notion of some feather-brained reformers that there is no such thing as sex in mind; and that, granted an identity of training and environment, men and women would be in all respects mentally alike. We cannot give space to discuss this theory, and must rest content with the statement that biology and psychology alike emphatically repudiate it. We doubt whether woman is necessarily and essentially inferior mentally to man; we are quite sure she is mentally dissimilar. The great maternal function alone could not operate without gradually inducing intellectual differences which are perpetuated by sexual transmission. All experience tends to show that woman shines in intuition, man in judgment; that woman is strongest when impelled by emotion, man when impelled by will; that man is creative, woman administrative; that woman is greatest in self-sacrifice, man in conquest and achievement. Be these differences inherent in sex, or the outcome of evolution, their existence can hardly escape any observer who does not start with some preconceived theory. Mr. Romanes concludes with a careful and dispassionate examination of the question whether the higher culture is often physically injurious to women, but this important subject we must reserve for future consideration.—*British Medical Journal*.

ON TINNITUS AURIUM.

BY THOMAS BARR, M. D., GLASGOW.

[Abstract of an Introduction to a Discussion in the Sub-section of Otolaryngology at the Annual Meeting of the British Medical Association, held at Dublin, August, 1887.]

It is not my intention to place before you anything like a review of the etiology, pathology and treatment of this symptom, as such a course would lead us over far too wide a field of discussion. I cannot better occupy the time at my disposal than by considering shortly, and inviting the expression of your views upon, a few of the special remedies which are recommended or employed for the relief of this symptom. I exclude from consideration these remedial measures, whether operative or medicinal, which are directed to the removal of definite, well-recognized lesions in the external or middle ear, upon the existence of which the tinnitus may depend, and by the cure of which the tinnitus is fortunately often removed. Excluding the consideration of these or other forms of treatment intended to remove any palpable lesion or any evident pathological source in the naso-pharynx or ear, we shall inquire what other weapons do we possess, in addition to such modes of treatment, which may be efficiently employed for combating this symptom. We cannot, I think, do better than confer with each other as to the relative and actual value of the various means which have been proposed and tried in such intractable forms of tinnitus aurium.

The first of these to which I would beg to direct your attention is *electrical* treatment. Great diversity of opinion seems to prevail as to the value of this mode of treatment in tinnitus. I think that in the use of electricity to the ear the mode of applying the electrodes is of great importance. The plan of placing one electrode over the mastoid process or to the orifice of the ear, and the other in the hand of the opposite side, is not, I think, a good one. As thus applied, I believe it to be less efficient and also more apt to excite giddiness or flashes of light. Any good results I have seen have been achieved by applying one

electrode, in the form of a piece of sponge attached to the conducting wire, and placed at the end of a vulcanite speculum, deep into the external auditory canal, even to the outer surface of the tympanic membrane; and the other, by means of a metallic ring at the end of a catheter, to the pharyngeal orifice of the Eustachian tube. In this way the galvanic current is passed, as completely as possible, through the middle ear. My impression is that any benefit derived is obtained more from the action of the electricity upon the middle ear than from its effects upon the internal ear, and that the benefit is mainly connected with its action upon the intrinsic muscles of the middle ear. We know the far-reaching influences of disturbance of the muscular apparatus of the Eustachian tube and tympanum upon the whole organ of hearing—first, upon the tension of the tympanic structures, and, secondly, upon the tension of the labyrinthine fluid, and the more efficiently we act upon these tubal and tympanic muscles the more likely are we to have good results. It is very much to be desired that this method of treatment should be placed upon a firmer and clearer basis than heretofore, and it is possible that the more general use of a galvanometer and rheostat may assist in the attainment of this result.

Another method of treatment to which I would ask your attention is the *Tonbehandlung*, tone treatment, brought recently before the profession by Professor Lucaë, of Berlin. Itard and Urbantschitsch had already pointed out the effects of objective sounds outside the body upon subjective sounds in the ear. Lucaë has found that a striking influence is frequently exerted upon certain subjective sounds in the ear, mainly of a musical character, by bringing to bear upon them objective sounds coming from a tuning fork, if these objective sounds be as far removed as possible in pitch

from the subjective ones. For example if the sounds in the ear are high-pitched notes, such as hissing, ringing, whistling, a deep-toned tuning fork, such as C or C', is employed; on the other hand, if the sound be low pitched, such as rushing, buzzing, humming, or a low-toned bell, then a tuning fork of a high pitch, such as C' or C'', is used. The vibrating fork is applied either by placing the end of its handle into the external meatus, or, in order to augment the sound, the vibrations are passed through a resonator fixed into the orifice of the ear. The duration of the application may extend from one minute to five minutes, and in order to ensure a continuous sound the tuning fork may be connected with a magneto-electric apparatus. I think Lucæ's observations are of great value, not only in relation to tinnitus aurium, but also to deafness itself. We know that patients frequently assert that the noises in the ear aggravate the deafness, and that if we could banish the sounds the hearing would be improved. Since Lucæ's observations were published I have tried this tone treatment, and I have met with a considerable measure of success, and am of opinion that greater success is in store for this method of treatment. And, as confirming the impressions of patients in regard to the effects upon the hearing, I have found that the hearing power has been distinctly improved, both as tested by watch and speech, during the disappearance or subsidence of the sounds.

Probably of all medicines used for the relief of tinnitus, *hydrobromic acid* has been most extolled. I must confess, gentlemen, my success has not confirmed the panegyrics of some writers. I have prescribed it very frequently indeed, and the somewhat meager results have been disappointing. Our Chairman, whose writings on the pathology and treatment of tinnitus have been so suggestive and interesting, is of opinion that this medicine acts beneficially by bringing about contraction of the dilated and engorged vessels of the labyrinth, through its effects upon the vaso-motor system of the labyrinth. I am afraid,

however, that in the forms of tinnitus I am now describing we have generally to do not so much with dilated and engorged vessels, but with the more serious condition of pressure exercised upon the nerve or labyrinthine fluid by condensed, thickened, rigid, or morbid tissue. Whether hydrobromic acid has the power of contracting dilated vessels in the labyrinth is not easy to prove. I can only say that in my experience it has only in a very few cases had the effect of removing or materially mitigating noises in the ear. This experience agrees with that of Politzer, expressed in his "Text-book of Disease of the Ear."

The *bromides*, especially bromide of potassium, have been, in my practice, more serviceable than hydrobromic acid. In doses of from half a drachm to a drachm at bed-time, bromide of potassium has not infrequently a distinctly mitigating influence upon the noises.

Pilocarpine, employed hypodermically, is undoubtedly useful in a certain proportion of cases. In my hands this remedy has been strikingly successful in several cases, although, alas! like other remedies for the relief of tinnitus aurium, it often fails. I believe it is only useful in recent and minute hæmorrhages into the cavities of the labyrinth, but fails if the hæmorrhage is extensive—because in this case, as might be expected, the delicate structures of the labyrinth are destroyed beyond the power of recovery, even after the effused blood has become absorbed. As to the explanation of the therapeutic action of pilocarpine, we can only assume that it has an especial power of stimulating the absorbents in contact with the effused products before these have become organized, and that this resorbent effect has also some connection with its remarkable powers of exciting the cutaneous and salivary secretion. It seems to have an especial action upon the intracranial absorbents, and we know that the vascular and lymphatic supply of the labyrinth is in reality the same as that of the interior of the cranium.

We are all familiar with the fact that *quinine* has an influence upon the circu-

lation of the ear, especially of the internal ear, and that noises in the ear with impairment of hearing are frequently set up by this drug. There can be no doubt, however, that in the cases I am referring to large doses of quinine (5 to 20 grains) not infrequently exercise a beneficial effect. How this is brought about it is not easy to say; further and careful clinical observations are required before a decision can be arrived at in regard to the exact position of quinine as a remedy in these forms of tinnitus aurium.

I do not think that it would be profitable or interesting if I were to discuss the merits of all the multifarious medicinal remedies proposed and used for the relief of noises in the ear. Unfortunately, the weapons taken from this well-stocked therapeutic armory are too often feeble and inefficient.

On the merits of nitrite of amyl, strychnine, arsenic, digitals, nitro-glycerine, ergotine, convallaria, chloride of ammonium, etc., we need not descant. I trust that out of the wealth of your experience we may to-day add to our knowledge of the true position of some of these remedies. Neither need I point out the necessity of employing appropriate hygienic and dietetic treatment, if any departure from the healthy condition is manifest; nor of the importance of mercurials, laxatives, and salines, if the hepatic or stomachic functions are disturbed; nor of the value of ferruginous tonics in anæmia, and anti-syphilitic remedies where a specific origin is clearly traced. These considerations are so self-evident that their discussion by me would be quite superfluous.—*British Medical Journal*.

DEAF-MUTISM AND CONSANGUINEOUS MARRIAGE.

BY CHARLES WARDEN, M. D., F. R. C. S. ED.,

Senior Honorary Surgeon to the Royal Institution for the Education of Deaf and Dumb Children, Birmingham, and to the Birmingham Ear and Throat Hospital.

Being connected with the Royal Institution for the Education of Deaf and Dumb Children in Birmingham, I thought it possible that I might lay before the Association some important facts and statistics which would be of interest to the members. This institution has been established upwards of seventy-four years, and is the oldest but one in England; although it is known as a Birmingham charity, its area of usefulness extends all over England. The number of children in the institution is 136—boys 75, girls 61; and there are now at least fifty in the town waiting their turn to be admitted. Additions are being made to the institution, and it is hoped the accommodation will then meet that requirement.

The condition of an uneducated deaf-mute is, indeed, a sad one. He is cut off from all familiar sounds; shut out from all participation in the intelligence of the world; excluded from the greater part of the pleasures and pursuits of life. What is more awful still, the social and intellectual degradation of uneducated deaf-mutes is thrown into the shade by the darkness of their spiritual state. The deaf and dumb have intellectual faculties, especially the faculties of observation, memory and comparison, and under education these faculties become capable of great development.

It is a great satisfaction to learn of the appointment of a Royal Commission to inquire into the condition and means for the education of the deaf and dumb

and the blind, and it is hoped that its labors will result in state aid to existing establishments engaged in the education of these classes.

The number of males exceeds that of females in deaf-mutes—that is, in the civilized world. In European countries Netherlands bears the smallest proportion (three mutes to 10,000); Switzerland the greatest (Berne, 54 to 10,000); entire average, 24 to 10,000; in some districts, 50 to 10,000; Belgium, 4 to 10,000; Great Britain, 5 to 10,000; Denmark, 6 to 10,000; France, 6 to 10,000; Spain, 6 to 10,000; Italy, 7 to 10,000. United States are below the average. Above averages are Germany, 9 to 10,000; Austria, 9 to 10,000; Hungary, 13 to 10,000; Sweden, 10 to 10,000; Norway, 9 to 10,000. In German States the number of deaf mutes is larger than that of blind; whereas, in most other countries blindness occurs more frequently than deaf-mutism. In Switzerland the number of deaf-mutes is three times that of the blind; there are more deaf-mutes in mountainous districts, more blind in lowlands. In Bavaria, where infant morality is exceedingly high, there are few deaf-mutes; in parts where it is moderate deaf-mutes are numerous—accounted for, possibly, by earlier deaths.

The deaf-mutes of Martha's Vineyard, who have attracted considerable attention in America, come chiefly from the town of Chilmark, containing a population of 500, of whom twenty are deaf-mutes, one in 25. The cause of the prevalence is not established beyond question; the probability is they are descended from common ancestors. The facts obviously illustrate the tendency of deafness to perpetuate itself in certain families, and the increased intensity of this tendency when members of those families marry one another.

The Spartans doomed all deaf and dumb children to death, and compelled their parents to cast them into the foetid caverns; the Romans looked upon them as the scorn of mankind. The Justinian code condemned them to one ignominious state of imbecility.

It is very probable that the work published in 1620—upon which the existing French and American systems of deaf-mute education are based—originated with a Benedictine monk in Spain, in the sixteenth century, named Pedro Ponce, who was the first practical teacher, and was modified by Bonet. In England the first to call attention to the subject was John Bulwer, in 1648.

The learned Bede, who died A. D. 735, recorded a case of deaf-dumbness in a youth, who had been taught to speak; then Rudolph Agricola, who died in 1485, had an idea of the possibility of teaching the deaf and dumb.

Deafness is not strictly a hereditary disease, though parents do have deaf children; when parents are both innately deaf it is extremely probable that their offspring will be naturally deaf; and if the children marry others naturally deaf, their offspring will be similarly afflicted; but if the deafness has arisen from an accidental cause, and there is no consanguinity or struma, then probably all their children will be perfect. Sometimes alternate generations will be affected; at others two generations are skipped, and it appears in a later one. The proportion is 80 per cent. congenital to 20 per cent. acquired.

When a number of children are born deaf in one family, heredity plays a part in its production; in such cases one must look for the causes in ancestry.

In regard to the second query, it is reasonable to assume that in the ancestors of a large number of unrelated deaf-mutes, light might be thrown upon the origin of deafness by a comparison of genealogies. Boudin especially considered that the marriage of blood-relatives favors the occurrence of deaf-mutism, blindness, mental diseases and great mortality amongst children. In Paris it produced 28 per cent., and in Bordeaux Institution one-third. Perrin found 25 per cent. in Lyons.

The consanguinity of parents (first cousins) is a cause. Two twin brothers married two sisters (cousin german); the elder had several children, one deaf

and dumb; of the younger six children, three can hear, three cannot.

Fright and strong mental morbid impressions on the part of the mother during pregnancy are among the physiological causes.

Organic defects is a pathological cause. In my own practice at the Birmingham Ear and Throat Hospital, and also at the Orthopædic and Spinal Hospital, I have had numerous instances of the effect of mind upon matter in producing deaf-mutes, and especially of congenital deformities.

Organic Defect, the Chief and True Pathological Cause.—In every case of congenital deafness the deficiency is owing to some lesion, either in the mechanical or sensitive portion of the auditory apparatus of the brain. The abnormal conditions are total deficiency of the external auditory meatus, adventitious growths filling up the cavity of the tympanum, the Eustachian tubes, mastoid cells and other foramina of the tympanum, absence of ossicula or ankylosis of them, deficiency or enlargement of the fenestra rotunda, spiral canals of the cochlea or aqueduct of the vestibule; obliteration of semicircular canals; preternatural density of petrous portion of temporal bone; defects of the labyrinth; atrophy of auditory nerve. Dr. Itard considered that nerve-deafness arose from paralysis of the labyrinthine nerve. Mr. Pilcher, whose pupil I had the honor, pleasure and satisfaction of being, taught that, in a majority of cases he examined, the cause is not demonstrated to account for the loss of function. Post-natal deafness arises where inflammation, ulceration or paralysis accompany or supervene upon diseases, such as scarlatina, typhus, small-pox, measles or convulsions—more from scarlatina than any other; and, last, also diphtheria.

Other Causes.—Then while congenital deafness is principally caused by transmission from parents, under circumstances not yet fully understood, acquired deafness is brought about by diseases which destroy the organs intended for the perception of sound. The great

majority of these diseases do not originate in the organ of hearing, but the deafness in most cases is caused by inflammation of the brain and its membranes, as also by general diseases which affect the ear—in which case the inflammation seems to affect the auditory nerve and labyrinth.

After brain disease, scarlet fever ranks second among the causes of acquired deafness; other zymotic diseases, third; injuries, etc., fourth.

Cerebro-spinal meningitis is another fertile source. In Prussia 278 deaf-mutes were produced by it. Erhardt was of opinion that the diseases produce hæmorrhage in the labyrinth, but this assumption is not borne out by *post-mortem* examinations.

In chronic inflammation of labyrinth hyperæmic swelling, fatty degeneration, atrophy of the membranous labyrinth, changes and deposits in the labyrinthine fluid take place. Naso-pharyngeal catarrhs are almost common causes of deafness.

Our knowledge of the anatomical changes in deaf-mutism are inexact and incomplete. We have no *post-mortem* records of deaf-mutes that were the offspring of consanguineous marriages, or who had inherited the defect; it would be of the greatest importance to learn on what organic conditions these causes depend. They are classed as malformations, anatomical abnormalities in the middle ear, in the labyrinth and auditory nerve, and in the brain.

Deafness and Blindness.—Prussia (1871 census) showed 201 deaf-mutes and blind out of 23,000. In Bavaria, in 4,348 deaf-mutes there were 23 blind. In the year 1840, in Sweden, in 2,100 deaf-mutes there were 90 blind. Diseases of the eye not unfrequently accompany those of the ear, especially in strumous constitutions. The exanthemata, small-pox especially, cause affections of both eye and ear simultaneously.

Rentinitis pigmentosa is either congenital or occurs in childhood. Hereditary predisposition and the blood relationship of the parents are the

principal causes of its occurrence. According to Leber, these causes can be traced in one-half the cases, hereditary predisposition being the cause as frequently as consanguinity of parents. Liebreich was the first to draw attention to the simultaneous occurrence of retinitis pigmentosa and deaf-mutism, and from his investigations come the following conclusions:

1. That retinitis pigmentosa occurs very frequently in deaf-mutes
2. That a simultaneous occurrence of both defects is chiefly observed in Jewish children (Liebreich was a Jew).
3. That in the majority of the children thus affected, the defects are due to the consanguinity of the parents. Liebreich examined 241 deaf-mutes, and found 14 with retinitis pigmentosa. The result of only one *post mortem* examination of a case of deafness associated with retinitis pigmentosa was reported by Lucæ, in which large quantities of calcareous concretions were discovered in both vestibules, and both vestibules were partially sclerosed, probably the remains of inflammation of the labyrinth in early childhood.
4. Cerebro-spinal meningitis is also a fertile cause of deafness. Of 77 pupils in the Pennsylvania Institution, 66 were cases of adventitious deafness, 18 having lost the hearing by cerebro-spinal meningitis. In Lackawana 85 per cent. are caused by this disease.

With regard to blood relationship of parents, Devay mentions an instance observed by Menière. Married cousins had eight children: four deaf-mutes, one idiotic, one died of encephalitis, two perfectly deaf. Mitchell computes that, if a deaf-mute marries a healthy person, the chances of a deaf-mute offspring are as 1 to 135; if two deaf-mutes marry, 1 to 20. If a deaf-mute marries a healthy cousin, he is in the same danger as if he had married a deaf-mute outside his family. If the cousin he has married is also a deaf-mute, the union is most dangerous.

Alexander Graham Bell has written a

memoir on the formation of a deaf variety of the human race. Dr. Bell does not advocate legislative interference with the marriage of the deaf-mute, for several reasons, one of which is that the results of such marriages have not yet been sufficiently investigated. While Dr. Bell's statistics do not establish the probability of the formation of a deaf variety of the human race, they certainly prove that heredity is a very important element in the cause of deaf-mutism. The principle of heredity is clearly proved by the large number of deaf-mutes who are related by blood to each other; 295 in 1,000 had one or more deaf-mute relatives in six American schools. Dr. Bell gives statistics of some families in the United States that have become famous in the annals of deaf-mutism for the large number of deaf-mutes they contain—the Browns of New Hampshire having deaf-mutes in four consecutive generations, and numbering 34 such cases; the Hoaglands of Kentucky containing 21 deaf-mutes in three consecutive generations; and a group of ten families in Maine, not known to be connected, contain 105 deaf-mutes. Dr. Bell's statistics show that many married deaf-mutes have no deaf-mute children, but they also show that the proportion of deaf children with deaf parents is far greater than with hearing parents.

Another curious fact shown by Dr. Bell's statistics is that the proportion of deaf-mute children is greater when one of the parents is deaf and one hearing than when both parents are deaf. Although the statistics of heredity are too limited and incomplete to form positive conclusions, the following seem probable:

1. Deaf-mute relatives marrying deaf-mute relatives are likely to have deaf-mute children.
2. Congenital deaf-mutes marrying each other, especially if either have deaf-mute relatives, are likely to have deaf-mute children.
3. The adventitiously deaf, and not having deaf-mute relatives, marrying

each other, are not likely to have deaf-mute children. likely to have deaf-mute children.

4. Deaf-mutes, whether congenital or adventitious, not having deaf-mute relatives, and marrying hearing persons who have not deaf-mute relatives, are not likely to have deaf-mute children. In conclusion, it appears self-evident to my mind that segregation is the remedy for anything approaching this condition.—*British Medical Journal*.

SENSIBILITY OF THE SKIN.

It is a matter of general surprise that would-be suicides are not dissuaded from cutting their throats by the intense pain naturally considered inherent in the tissues. the neck, in all of its thickness; and also a sudden mechanical irritation of the skin of the neck and larynx causes a paralysis of the great nerve centers, and consequent cessation of respiration and circulation.

In searching for the explanation of this fact, Prof. Brown-Sequard has proven that the slightest incision in the cervical region immediately destroys the sensibility of the anterior half of In this way death by hanging, without suffocation, can be explained.—*Archives, Generales de Medicine*.

CLINICAL NOTES.

PNEUMONIA, WITH SEPTIC LEPTO-MENINGITIS.

[From Cook County Hospital. Reported by the Internes.]

CASE I.

F——B——, aet., 23 years; occupation, laborer. Had been sick 11 days before admission to the hospital. Admitted Nov. 7th. Died Nov. 14th.

No family history. No venereal history. Has been a dock hand, and confesses to have been a moderate drinker. Was sick in St. Louis two years ago with intermittent fever, and has not been well since then, suffering from time to time with neuralgia and dyspepsia. His present illness commenced 11 days ago with sudden and severe pain through head and chest. Following that, for three days, were severe rigors, followed by fever, vomiting and exacerbations of the headache. Since his illness commenced he has suffered from entire loss of sleep and from constipation, his bowels not having moved for four days.

Examination of the patient revealed equally contracted pupils, no paralysis of the extremities, retracted abdomen, with slight amount of gurgling in both *iliac fossæ*; the tongue and lips were dry, harsh and coated; there was cutaneous hyperæsthesia strongly marked, especially over abdomen and thorax; the temperature on admission was 103° F.; respiration 32; pulse 84, and full; urinalysis showed a specific gravity of 1032, with a trace of albumen, but no sediment. The patient lay in a stupor,

from which he could be easily aroused to intelligence, but always with an uneasy expression of pain. When aroused he would immediately complain of great pain in the head. He had also a short, dry cough of an apparently nervous origin. Any attempt at a physical exploration of the thorax was resisted by the patient with renewed complaint of pain.

Probable diagnosis: Acute leptomeningitis. Treatment: Ice cap to head. Antipyrin, grs. xv. when the temperature exceeded 102°. Bromide and iodide of potassium in moderate doses at first, then pushed. Fluid extract of ergot in 3ss. doses. Magendi's solution p. r. n. to relieve pain. Cathartics, at first mild, then enemata and fortified oil (ol. ricini 3i, ol. tigllii gtt. i.) when bowels failed to respond to gentler measures. The progress of the case was unfavorable. The range of temperature was from 99° to 105°; the latter was reached just before death. No evening exacerbation. The pulse ranged between 90 and 120, becoming imperceptible at the last. Respiration ranged from 30 on admission to 64 just before death, and was labored, with marked stertor during the latter days. During the night there was at first muttering, delirium, and at times stupor. Toward the last he became comatose. The pupils

were dilated before death. There were involuntary evacuations of rectum and bladder for some time preceding the termination of the case. No paralysis of motion or sensation was observed except in parts supplied by the cranial nerves. He moved aimlessly from time to time, even just before death.

Post-mortem 20 hours after death. Rigor decided. Abdomen retracted. No external markings. Body emaciated. Heart normal.

Lungs: Adhesions over both apices. Lower lobe of left lung is in a condition of red hepatization, with small insular patches of gray hepatization commencing.

Spleen: Liver and kidneys are a trifle soft and swollen.

Stomach and intestines not opened.

Head: Sinuses of the dura mater are more than usually full, but without thrombi. On opening the dura the convolutions of the cerebrum are seen to be more than usually flattened against the dura. There is no excess of fluid in the sub-dural or sub-arachnoid spaces. The pia mater of the convexity is deeply congested, and in the larger sulci there is a large amount of fibrinous effusion. On examining the base of the brain the following appearances were observed: For a distance of 8 cm. from the optic chiasma backwards, below medulla, and between the bases of the cerebellar lobes, and extending in width 3 cm.

either side of the median line, there is creamy, semi-solid exudate, involving the infundibulum, perforated spaces, optic tracts, cerebral peduncles, pons, medulla, and the superficial roots of all the cranial nerves. Exudate is entirely beneath the pia, not involving the dura or nerve sheaths, or the bony structures of the base of the skull.

The base of the left middle lobe is soft to the touch, and fluctuation can be elicited at any point over the area of softness.

Incision through corpus callosum into right lateral ventricle discloses a small amount of slightly turbid fluid, not distinctly purulent. Brain substance is not softened.

Incision into left lateral ventricle shows the ventricle to be enlarged and filled with thick greenish pus, similar to that noticed at the base. The exudate communicates through the infundibulum with that at the base. The choroid plexus is covered with pus and the walls of ventricle are softened. The spot of softening felt from without is found to be due to the extension of the softening and suppuration from the ventricle into the brain substance. Both basal ganglia are soft. The third and fourth ventricles are filled with pus and the walls are softened.

Microscopical examination reveals copious exudation of leucocytes into pia mater and into gray and white substance of all structures involved.

SARCOMA OF FEMUR: AMPUTATION.

CASE II.

G—— S——, aged 18 years, was admitted on November 10th, with painful swelling of the left knee. The patient's general health and family history are good. He gave the following history:

Six weeks before admission, he fell through a hatchway, striking his left knee. It became swollen and painful, but not enough so to keep him from walking about the house. In two weeks he resumed work, though the knee was not strong, and he worked only one day on account of pain experienced. From that time until his admission into the hospital it had grown steadily worse, and for a week before admission he was unable to use the limb at all. On examination the leg was found to be considerably flexed, but by careful manipulation it could be nearly straightened without pain. The knee was swollen, particularly at its outer and upper aspects, where it was also extremely tender. Exploratory puncture revealed blood and shreds of tissue, which were not examined microscopically. The patient suffered greatly, and the tenderness became more diffused, though neither swelling nor tender points could be discovered below the patella.

November 21st, the limb was suspended and a Martin's bandage applied. Extension with weight of four pounds was used.

November 26th, a cachectic appearance of the patient was observed. By December 3rd, swelling had extended five or six inches up the thigh.

December 4th, an exploratory incision, four inches long, over the outer condyle revealed large masses of morbid material

and a large cavity in the femur filled with similar masses. There was no effusion into the joint, and no erosion of the cartilages, but the femur was roughened as far as the finger could reach. A circular amputation in upper third of thigh was made at once.

On December 5th there was considerable oozing; the dressing was changed and the lower drainage tube was removed.

On December 8th the last drainage tube and the sutures were removed.

December 21st, the patient was up and moved about on a wheel-chair. His highest temperature had been 99.5°F.

December 23rd, the patient evidently has been greatly relieved by the amputation, but the cachexia still continues and seems to be increasing.

Examination of the specimen discloses marked proliferation of cartilage and connective-tissue, especially in the vicinity of external condyle. In the cartilage are found numerous spicules of bone. Attached to the lower anterior external surface of the bone and extending into the neighboring tissues without distinct encapsulation is a moderately soft, fleshy mass about the size of a duck's egg. Numerous blood-spaces are enclosed in this mass. Beneath this new formation the bone is found to have been absorbed, and examination discloses the medullary cavity of the bone filled with a soft, pulpy sanguineous material in which the microscope reveals blood, fat, multiform and multinuclear cells. The knee-joint has not been invaded by the new formation.

Microscopical examination of sections removed from various portions of the

tumor and its surroundings shows plastic inflammation of all the neighboring structures resulting in proliferation of cartilage, bone and connective-tissue.

Characteristic sarcoma-structure is found throughout the new formation and also in fresh specimens removed from the medulla.

INJURY OF THIGH AND CONTUSION OF BACK.

CASE III.

J—K—, aged thirty-four, laborer. The patient was brought to the hospital by patrol about 9:30 A. M., suffering with a crushing injury of his right leg as far up as the knee, a railroad engine having passed over it. A contusion of the back was also found. He was almost exsanguinated, the patrolmen not having correctly applied the rubber constrictor. His pulse was 160 and very weak. He was pale, very thirsty, and at times unconscious.

Digitalis, aromatic spirits of ammonia, and whisky were administered without avail. At 11:30 A. M., as he did not improve, infusion was deemed advisable. The median basilic vein was opened and a warm saline solution injected, consisting of sodium chloride, 6 parts; sodium bicarb., 1 part; aquæ dest., 1000, at a temperature of 100 deg. F. Eight ounces of this solution were used. Only slight improvement was noticeable in the pulse after the infusion, owing probably to the small amount of fluid injected.

An Esmarch's bandage was applied to the crushed tissues, as far as to the healthy, and remained in place until the following day (1:30 P. M.), when the limb was amputated at the junction of the lower with the upper two-thirds of the thigh and dressed in the usual way. The patient did not do well for two weeks, the flaps sloughed, permitting the bone to protrude. He complained much of pain in the back. The temperature ranged during this time between 99.5 deg. and 102 deg. F. At the end of this time an abscess was discovered in the small of the back. It was opened and drained. The temperature immediately subsided, and did not rise again above 99 deg.; his appetite increased and he improved in every way.

December 7.—Re-amputation of bone, removing about an inch and a half.

December 22.—The stump is nearly healed; an ulcer, size of a half dollar, remains, and is studded with healthy granulations.

A CASE OF PUERPERAL ECLAMPSIA.

INDUCTION OF LABOR.—RECOVERY.

CASE IV.

H— G—, white, single, aged 25 years, and of Swedish descent was admitted to the obstetrical ward of the hospital, October 17th, 1887.

Her family history is good; there are no neurotic tendencies. The patient had been troubled with dysmenorrhœa, probably obstructive, for 10 years previous to the date of her last menstruation, on February 10th, 1887.

During the greater part of her gestation she was a sufferer from headache, backache, anorexia, neuralgia and general weakness, which at times necessitated her keeping her bed for several weeks.

About September 1st, she noticed that her face, and, at times, her hands, were puffed after lying down. During September and October she suffered from severe morning vomiting and coronal headache; and experienced several "spells," one of which was attended with unconsciousness, which was relieved only by venesection.

October 24th. Urine: yellow, acid, sp. gr. 1003, trace of albumen. Amount passed in 24 hours, 50 ozs., containing 165 grains of solids.

Ordered: Hydrarg. bichlor, gr. $\frac{1}{4}$, Potass. Iod. grs. X. 3 times daily, with Tr. Ferri chloridi M xv and Sp. Frumenti, $\frac{3}{4}$ ss, after meals.

November 3d. Urine: yellow, acid, sp. gr. 1010, no albumen, amount for 24 hours, 80 ozs., containing 880 grains of solids.

After her admission into the hospital she had several attacks of syncope, of which she afterwards had no recollection.

November 15th, at 10 P. M., she had a typical eclamptic seizure. She was unconscious for two hours.

February 16th. She was very nervous and apprehensive. Efforts at vomiting had been so constant and so severe that she was quite exhausted—merely touching the cervix would excite nausea. It was then decided to induce labor, chloroform was administered and with fingers os uteri was forcibly dilated and the membranes ruptured. A vertex presentation in the third (O.D.P.) position was diagnosed.

Miller's forceps were applied, and the child delivered in 25 minutes. Good retraction was secured by the administration of ergotin, gr. iii, hypodermatically.

The perinæum was lacerated down to sphincter ani, and coaptated with one internal continuous catgut and five external silk sutures, which were removed on the 8th day when union was perfect.

The child was a male, vigorous and weighing seven pounds; it was completely resuscitated in 15 minutes. Four convulsions occurred during the puerperal period, two of which were controlled by morph. sulph. gr. $\frac{1}{4}$, administered hypodermatically. Two were attended with unconsciousness, when morphia sulph. gr. $\frac{1}{2}$ was administered and followed by fl. ext. pilocarpine qss. which produced free diaphoresis with subsidence of all unfavorable symptoms. November 24th. Urine:—Deep yellow, acid, sp. gr. 1025, trace of albumen. 32 ounces passed in 24 hours, containing 880 grains of solids. The hydrarg, bichlor. and the potass. iod. were discontinued, and potass. acet,

grs. xxx, with potass. et sod. tartras xi. to be given every four hours was ordered. The usual strict antiseptic precautions now in practice in the obstetric ward were observed throughout the management of the case. The temperature at no time exceeded 99.8° F. Her bowels were moved daily by a glycerine and water enema, or by some mild laxative. The severe headaches were relieved by 15 grain doses of antipyrin. After the last convulsion the patient improved rapidly. Her supply of milk was scanty, and as she could not keep the child, its secretion was suppressed by the application of ungt. belladonnæ and uniform compression to the breasts.

December 12.—She has good appetite, sleeps well, is gaining flesh rapidly and feels perfectly well.



REPORT OF THE PROCEEDINGS OF THE ILLINOIS STATE BOARD OF HEALTH.

QUARTERLY, MEETING, CHICAGO, OCTOBER 18, 1887.

The regular quarterly meeting of the Illinois State Board of Health was held in this city on October 18, 1887.

Drs. W. A. Haskell, President, Newton Bateman, A. L. Clark, W. R. Mackenzie, H. V. Ferrell and John H. Rauch, Secretary, were present.

The Secretary presented the following

QUARTERLY REPORT.

During the quarter ended September 30, 1887, there were received in the Secretary's office 1,798 written communications of all kinds, and a total of 1,050 were sent out. Of printed matter there were distributed 143 copies of the various Annual Reports, 47 Official Registers, 24 copies of Report on Medical Education, 7,200 copies of Report of Proceedings of July, 1887, Meeting of the Board,—which contained also the new law regulating the practice of medicine, in force July 1, 1887,—and the usual number of the various publications of the Board, preventable disease circulars, etc.

CERTIFICATES AND LICENSES.

There were issued 108 certificates to physicians during the quarter; 84 to graduates upon diplomas from medical colleges in good standing; 1 upon examination; 14 to non-graduates upon proof of ten years' practice in the State prior to July 1, 1877, and 4 duplicates upon proof of destruction of the originals. Certificates were also issued to twenty-five midwives; 10 upon diplomas or licenses, 12 upon examination and three upon years of practice.

The unusually large number of certificates issued—greater than ever before during the third quarter of any calendar year since the Board was organized—is due to the operation of the new medical practice act, which has brought all physicians under the provisions of the law, without regard to length of practice in the State. Of the 108 certificates issued no less than 38 were to practitioners previously exempt—24 to graduates and 14 to non-graduates who were not required to take out certificates under the act of 1877. More applications for certificates (60 in all) have

also been deferred for the action of the Board, or definitely rejected, than during any corresponding period since 1878. This result was to be expected, since the great majority of skillful, qualified physicians had complied with the law of 1877, and were already duly certificated. While there were a number of physicians of the same reputable character and attainments as these in the small minority remaining, there were many of a very different class, who were exempted from supervision by the ten-years' prior-practice clause of the old law. These are now required to hold the certificate of the Board as a guaranty of their moral and professional fitness to practice medicine, and it is mainly from these that the rejected or deferred applications have come. These applications have been deferred or rejected because the applicants are unable to comply with the law.

THE NEW MEDICAL PRACTICE ACT.

Although entailing an immense amount of detail labor, and giving rise to many perplexing questions, the results of the operation of the new act to regulate the practice of medicine thus far have been fairly gratifying. A number of suits for violation of its provisions have been brought locally against quacks and other disreputables. In eleven of these the suits have been pushed to a successful conclusion.

One of the most signal benefits of the new law has been already demonstrated in practically ridding the State of the itinerant nostrum vendors. At the close of the quarter there were only two of this class of charlatans left in the State, and the necessary proceedings have been already begun to secure their conviction or compel them to abandon Illinois as a field for their efforts.

MEDICAL EDUCATION.

The revision of the Report on Medical Education is almost perfected, and the tables and conclusions will be submitted for the information of the Board during the meeting. A period of ten years is now covered by this report, and the data concerning 258 medical colleges of all classes and

an aggregate of over 116,000 medical students, including some 37,000 graduates, are embraced in its successive editions.

One of the most striking features elicited by this research and its mass of facts and figures is the cumulative evidence afforded of the influence of the action of this Board upon the subject of medical education throughout the United States. In 1890 the Board announced its adoption of a Schedule of Minimum Requirements, compliance with which schedule should be the condition of "good standing" of any given medical college after the sessions of 1882-83. At the former date, 1890, the percentage of graduates to matriculates was about 35; it has now fallen to 30.5. The improvement is even more marked in the regular schools in which during the sessions of 1881-82, immediately following the announcement of the Board, the proportion of graduates to matriculates was 35.8 per cent. During the last sessions this percentage was 28.8—showing an improvement, numerically expressed, of over 18 per cent. in this respect.

These changes are still more significant when it is considered that the exaction of a preliminary education and the longer term of study, attendance on clinics, laboratory work, etc., have excluded, on the one hand, a large number of those primarily unfit for the study of medicine, and, on the other hand, have given the graduates a more thorough training and higher qualifications for the practice of their profession. The extent to which this process of exclusion of the unfit has been carried is shown in the total numbers of those engaged in the study of medicine in 1882-83 and in 1896-97, respectively. During the first-mentioned period there were 13,088 matriculates reported at the various colleges. At the last sessions, notwithstanding the growth of population, there were only 12,939 in attendance. Other figures show equally gratifying improvement in other directions.

THE PUBLIC HEALTH.

Since the last meeting of the Board, the matter of greatest moment to health officials and health boards everywhere in this country has been the arrival of the cholera-infected steamer *Alesia* at the port of New York on September 25th. With the general facts concerning this arrival, and the action of the New York quarantine officers in the premises, the Board and the public have been advised by the daily press. It is too early to assert that all danger is now past from this arrival. So far as the developments go, the occurrence is a sufficient justification of the action of the Board in empowering its secretary, more than two

years ago, to make an inspection of the quarantines maintained on the Atlantic and Gulf coasts with the especial reference to the exclusion of Asiatic cholera and small-pox. In the introduction to that report, made early in 1886, it was said that "these outer lines, even with some defects and weak places, I believe to be even now sufficiently strong to keep out the disease if proper vigilance and thoroughness be exercised, if all the facilities be utilized, and if timely notification of threatened danger be given by the National Government.

"The next year or two, however, will furnish a tolerably conclusive test of the efficiency of quarantine to exclude the pestilence from this country."

More than a year before this report, in an address at the opening of the National Conference of State Boards of Health, held in St. Louis, October 18, 1884, it was urged that "Congress should give the President the power to issue a proclamation, upon the recommendation of the National health authority, forbidding immigration into the United States from infected districts of other countries, and it should provide some method of international sanitary co-operation between this country and the Dominion of Canada, whose interests are substantially the same as ours in these matters, and whose contiguity makes co-operation of vital importance."

These important matters are yet neglected, and there is not any provision for timely notification of threatened danger by any National authority.

The *Alesia* arrived at a port where the quarantine regulations require every foreign arrival to be boarded and inspected before allowing the vessel to proceed to her dock. The existence of the cholera infection was thus promptly ascertained on this vessel, and the proper steps were at once taken to segregate the sick from the well, to place these latter in a quarantine of observation, and to isolate the former so as to prevent any spread of the disease from existing cases. Meanwhile approved disinfecting and cleansing processes were applied to the vessel, to the dunnage and personal effects of the crew and passengers, and to other material susceptible of being fomites.

That these precautions were imperatively necessary is shown by the continued development for fully two weeks of new cases among the apparently healthy isolated on Hoffman's island. Notwithstanding all the precautions which were observed, the disease continued to attack people removed as far as possible from all

known sources of infection during a period of fourteen days.

Can it be doubted that, had the English theories of cholera and of quarantine obtained in New York harbor during the past few weeks—can it be doubted that these twenty-six cases or a large proportion of them would have been scattered throughout the country, each one to form a possible epidemic center? It is, of course, this consideration which excites our interest in the administration of the coast quarantines.

Dr. W. M. Smith (health officer at the port of New York) is believed to have been prompt, explicit and candid in his telegraphic statements, and this belief has reassured the whole country. The interior has assumed that everything known to the best modern sanitary practice of quarantine was being enforced to prevent the cholera poison obtaining a foothold upon our shores.

But it must not be forgotten that there is no legal obligation on the part of Dr. Smith or of any other health officer to take such action in the interest of any but his own port and territory.

In this connection it is proper to state that Dr. Montizambert, in charge of the Grosse Ile quarantine below Quebec, writes the Secretary under recent date, forwarding a printed copy of the revised quarantine rules and regulations now enforced on the St. Lawrence, from which it is seen that the recommendations—as to quarantine practice, equipment, appliances, etc.—made in the report already referred to have been substantially adopted and carried out. This action materially increases the efficiency of one of the important safeguards of the interior, and there is no impropriety in citing it as one of the direct results of the quarantine inspection authorized by the Board in 1885.

In view of the manifestations of this pestilence during the past few months upon the Italian peninsula and in the Mediterranean, and the as yet uncontradicted assertion that it has reappeared in South America, everything pertaining to our coast defenses against introduction of the disease is of very vital interest.

[During the session of the Board, information was received of the development of four cases of cholera upon the *Britannia*, a sister steamer of the *Alesia*. She arrived in New York bay on the 18th, and was detained at the upper quarantine station for observation until the 18th, when the disease was positively identified, and the vessel was at once taken down to the lower station to be treated as the *Alesia* was.

This second arrival suggests the danger threatening the country from vessels sailing from ports of the infected Mediterranean to American ports, where no facilities exist for quarantine of observation, isolation, etc.]

The outbreak of yellow fever at Tampa and elsewhere in Florida have fortunately occurred too late in the season to give rise to much solicitude. The chief danger lies in the want of efficient health organizations throughout the territory affected, and the consequent probability of neglect to properly deal with infected material and localities. Such neglect may give rise to other outbreaks, or even an epidemic next year.

Although the public health of Illinois and the country generally has remained in a fairly satisfactory state, conditions obtained during the past summer, which caused grave solicitude. The intensely hot weather of July and the prolonged drought were among the more important of these. The great prevalence of diarrhoeal diseases and numerous outbreaks of typhoid fever—the former directly due to the high temperature, and the latter intensified by water supplies, affected by the drought—were ominous of the results which might be anticipated if the specific poison of Asiatic cholera should be introduced. Fortunately this calamity was escaped, and the approach of cold weather assures us a further season of probable immunity from a cholera epidemic.

The only other noteworthy feature of the past quarter in this relation has been an extension of diphtheria—in many cases very malignant and fatal.

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CHICAGO MEDICAL SOCIETY.

STATED MEETING, OCTOBER 27, 1887.

The President, W. T. Belfield, M. D., in the Chair.

Professor E. Fletcher Ingals reported a case of

RETROPHARYNGEAL ABSCESS

of unusual interest, on account of the deep fistulous tract which remains, and as an illustration of the necessity for prompt incision for the evacuation of pus in cases of retropharyngeal abscess.

Mrs. H. P., æt. 44, was sent to him during the month of August from a neighboring state for an opinion. She complained of an oppressive, purulent discharge from the pharynx, with more or less pain between the shoulders, cough and night sweats. She stated that the discharge would occur every few days, and that afterwards she would be free from cough, pain or other annoyance for some time, when the symptoms would again come on gradually, and increase steadily until another evacuation of the pus occurred.

Six months before coming to see him, she had had soreness and swelling in the naso-pharynx. The swelling had gradually extended downward, causing more or less difficulty in swallowing and respiration, and had been allowed to take its course for two months, when an opening was made in the lower part of the pharynx, which gave vent to a large quantity of offensive pus. Subsequently the incision closed, was reopened twice, and finally it had remained patent. While the swelling was still in the naso-pharynx, she had for some time also a purulent discharge from the right ear. He found the patient anæmic, weak and emaciated, weight only 94 pounds, instead of 112 pounds, as when in health. Pulse 132. Her tongue was red and glazed in center, but her appetite was good. The cough was not constant, but it usually troubled her considerably every day. The pains of which she complained were not severe, and were confined to the chest and shoulders.

Upon examination of the chest no abnormal signs were found, excepting slight feebleness of the respiratory sounds over the lower third of the right lung. A mucous polyp half closed the right naris; the larynx was normal. When the tongue was forcibly depressed a little to the right of the median line, at the lower third of the larynx, a small red fungoid mass, about the size of a pea, could be seen. The vault of the pharynx was normal, and nothing else of an abnormal character could be seen. The fungoid mass was removed with a snare, and beneath it was found an opening about two millimeters in diameter, into which was passed a small elastic catheter, and gently pushed down a fistulous tract a distance of thirty centimeters, when she complained of its extremity causing her pain a little to the right of and below the right breast.

The position of the lower end of the fistula seemed in some way to account for the enfeebled respiration at the lower third of the right lung. The patient did not remain in the city, he, therefore, was unable to see her when there was pus in the cavity, and consequently could not determine the exact position of the lower end of the fistula.

He had recommended removal of the polypus and washing of the fistulous tract daily with carbolyzed water or peroxide of hydrogen through a catheter introduced to its bottom. The use of tonics was also advised. The result of the examination was communicated to her physician, but nothing further was heard of the case. Professor Ingals was under the impression that when the lower part of the sac was filled with pus it might be possible to detect it, and make a counter opening through the pleural sac, whereby constant drainage could be established so that healing of the fistula might be effected.

Professor F. O. Stockton said: "This sequel of a retropharyngeal abscess is something a little out of the ordinary run. In his experience he had

never met with anything that produced any such symptoms, although he had frequently met with fistulas resulting from a retropharyngeal abscess. The case was interesting as showing what may occur when an abscess of this kind is not recognized in time. Abscesses are liable to burrow deeply, and in a location like this, where the soft tissues overlie a hard, bony substance, an abscess with a tendency to burrow could easily go very deep, and by pressing upon the nerves produce these pains; but it seems strange, unless the nerves were bare, that passing a small catheter down should produce these pains below the right breast. It looks as though some of the spinal nerves might have been laid bare by this burrowing of the pus. In a case of that kind, it seemed probable that what Professor Ingals had suggested was about the only thing that could be done, although one can hardly see how the opening he suggested could be made so as to give thorough drainage without injury to some nerve or other important structure.

Professor W. E. Casselberry said that the subject is one of interest for two reasons: *first*, retropharyngeal abscess is not a common disease, especially in the adult. It is oftentimes overlooked, and the responsibility rests upon the physician in all cases where there is dyspnoea, continuous or paroxysmal, to make a thorough examination of the throat both by inspection and palpation, in order to determine the diagnosis. *Secondly*, it is of interest on account of the peculiar complication in this case. He had seen the record of a similar case reported by Cohen among a number of cases of retropharyngeal abscess having some peculiarities. In Cohen's case a sinus burrowed deeply between the oesophagus and trachea, and finally pointed externally low down in the neck, and pus was evacuated by incision. On account of the loose connective tissue in this region and the influence of gravity, the natural tendency is for the pus to burrow downward, and other cases of the sort will doubtless be observed.

In reply to Dr. Strong, as to how he would make the opening suggested, Professor Ingals said he thought that when that sinus was filled with pus there might be a considerable collection—a pocket, perhaps, of a couple of inches in diameter—and if it was of that size, one could find the location and when found, he believed one could get an opening into it. He would not hesitate to plunge an aspirating needle into it, even passing it through the lung, if necessary. He was reminded of a case of an infant that he saw many years

ago. He then thought the child had died of convulsions, but he thinks now that it died of retropharyngeal abscess. In young children sudden stopping of the breath occurs that seems as if from closure of the glottis, but there is none of the sound that occurs with spasm of the vocal chords. Recently a man of perhaps 50 years of age had been sent to him with a statement that he had stenosis of the larynx, and that something must be done. With a laryngeal mirror he examined his larynx, and found a large swelling in the pharynx, which one could see by depressing the tongue. It was a retropharyngeal abscess, which had existed four weeks. He swallowed with difficulty, but opening of the abscess relieved the dysphagia.

Albert B. Stroug, M. D., reported two cases of SUBPERIOSTEAL RESECTION OF A RIB FOR EMPYEMA IN CHILDREN; WITH RECOVERY.

He had within the past two years made subperiosteal resection of a segment of a rib for empyema in two young persons, one a boy of 6 and the other a youth of 17 years of age. The results had been so satisfactory that he desired to place the cases on record, particularly so since able authority has recently condemned the operation in children*.

CASE I. In May, 1886, he had seen in consultation with Dr. Charles Venn, of this city, a boy 6 years of age. The father, mother and other children of the family were pictures of perfect health. The boy was large for his age, and up to the time of that illness had always enjoyed the best of health. Four weeks prior he began to cough, and eight or nine days later evidences of an effusion into the right pleural cavity were manifest. In spite of appropriate constitutional and local treatment, the effusion increased, and when Dr. Strong saw him the chest cavity was completely filled. The boy was much emaciated with continued fever and night-sweats.

A hypodermic needle thrust into the chest just above the eighth rib in the axillary line revealed the presence of pus. Under ether the eighth rib was exposed through a parallel incision two inches in length. The periosteum, midway between the upper and lower border of the rib, was split in a longitudinal direction for the distance of an inch. By means of a blunt hook the periosteum and intercostal vessels were

*See an article by Dr. Garnett, of Washington, on "The Surgical Treatment of Suppurative Pleuritis in Children," published in *The Journal of the American Medical Association*, September 17th, 1887.

easily peeled off from the posterior surface of the rib, and three-fourths of an inch was cut away with bone nippers. This was done without wounding the intercostal vessels or pleura. Next, the internal layer of the periosteum was split to the same extent, and parallel to the external layer. The pleura was opened, when two quarts of laudable pus was evacuated. The chest cavity was immediately washed out with a warm saturated solution of boracic acid, and a large rubber drainage tube was introduced and retained in position.

The subsequent history was uneventful. He began to improve at once. The chest cavity was daily washed out with simple warm water. A wad of oakum was placed over the wound. The tube was kept in place six weeks, when the lung entirely expanded and the wound completely healed. Sixteen months after the operation, the boy is perfectly well. The right chest is normal like its fellow, in shape and function. There is but a small scar at the seat of the operation, and the rib has perfectly reformed in direction and shape.

CASE II.—A Norwegian boy, 17 years of age, always delicate, very thin and poorly nourished; six feet tall, pale and anæmic. His father, brother and one sister died of consumption. His mother is alive and doing well. The patient was first taken sick about March 10, 1887. The symptoms and signs indicated pleural pneumonia of the lower lobe of the right lung. In a few days he was convalescent.

On March 24 he had a relapse, and the right side of his chest slowly and intermittently filled with effusion. He had night-sweats, diarrhoea and cough, and a temperature of 102° to 104° F. On April 24, about five weeks from the commencement of the effusion, empyema being diagnosed by the hypodermic syringe, with the assistance of Dr. Venn he removed, sub-periosteal, one and one-half inches of the ninth rib in the axillary line. Four quarts of laudable pus escaped. At the last about four ounces of clear serum passed out. The chest cavity was immediately washed out with a solution of boracic acid, and two large parallel rubber tubes with a drainage diameter of three-eighths of an inch each were introduced. These were held in position by a rubber shield and elastic bandage around the chest. The pleura was felt to be about three-fourths of an inch thick. During the next few days there were washed out large masses of lymph. Hot-water injections of two quarts at a

time were used, night and morning. A wad of oakum was kept over the opening and changed often. The diarrhoea, sweating and cough began immediately to abate. The temperature in three days dropped to normal. On the first day of May, eight days after the operation, the tubes were crowded out. All the unfavorable symptoms had disappeared; he was eating and sleeping well. The opening on the inside was closed, as was then thought, by the expansion of the lungs; subsequently it was learned it was closed by the arching of the diaphragm. The tube was left out five days, when the temperature began to ascend, and soon reached 104° F. There was a return of the sweating, diarrhoea and cough. Nothing had escaped from the wound in the meantime. The wound was then reopened, and about five ounces of stinking pus and débris washed out. A large Van Buren urethral sound was passed into the chest, and it was ascertained that the lung was compressed into a small wad against the vertebral column. It had not expanded at all. He felt the apex of the sound in the chest above the clavicle. He then introduced longer, fenestrated drainage-tubes, three inches in length. From that time on his convalescence was uninterrupted. His temperature quickly became normal, and did not again rise. He soon began to go out of doors, and improved rapidly. On June 12, three weeks after the tubes had been introduced again, notes of the case read: Boy has gained ten pounds; out of doors most all day. Eats enormously and digests well. No cough, and but little discharge. The sound in the chest shows the lung has not expanded. Put in drainage-tubes without fenestra, since granulations had crowded into the former tubes so as to nearly occlude them. Sent boy to a farm near Whitewater, Wisconsin, with instructions to keep tubes in position and syringe out the cavity once a day with warm water that had been boiled. Ten weeks later, on August 25, he returned looking altogether different. Was twenty pounds heavier than when first taken sick, and expressed himself as never feeling better in his life. The tubes had remained in place until a few days before, when they had been crowded out and could not be reintroduced. Physical examination showed the lung expanded, with good motion of the chest and vesicular murmur throughout. In a few days more the opening entirely healed, and the boy left for Norway, perfectly recovered, six months from the commencement of his illness, and four months' wearing of the tube.

It is only within a few years that surgeons have been bold enough to make a section of a rib for empyema. It is, perhaps, but natural that the operation should be condemned by those who have always used the trocar or incision. To oppose the operation on purely theoretical grounds, and conclude that it is a grave and serious operation, is, he believes, contrary to the facts in the published cases.

In the article alluded to in the commencement of the paper, we find a table by a London writer of thirty-four cases of empyema, treated surgically, occurring in children of from one to ten years of age. Of the number, seventeen recovered after a short section of one rib had been made. The average time of recovery was seven weeks.

Dr. Garnett reasons that had these cases been treated with the trocar and drainage tube, they would in all probability have recovered equally as well. Here is what he says against exsection: "When we consider the fact that the bony fabric of the chest is still in a condition of progressive development, the rapid and excessive deposit of callus following the solution of continuity of a rib protruding into the cavity of the chest, irritating the lung, the inevitable disparity and loss of symmetry in expansion of the two sides of the thorax, the growing condition of the child, which necessarily adapts itself to the physical results of the traumatic interference, establishing often a permanent deformity, associated at times with more or less spondylitis, and greatly restricted respiratory capacity of the chest, the pouch of periosteum from which the excised piece of rib has been dissected, the protracted healing and long-continued dressing of the open wound, augmenting the chances of septicæmia, and exhausting the vital energies and recuperative resources of the little sufferer, we should hesitate before resorting to so grave a surgical procedure, when a more simple and conservative one can be safely and successfully practiced."

Dr. Strong thinks such conclusions should not go unchallenged. One does not find them from a careful study of these cases. He asks: "Is subperiosteal cutting away of a short segment of one rib, with modern surgical treatment, liable to be followed by such grave consequences as the writer referred to would have us to believe? Free drainage in abscess-cavities is the imperative rule at the present day. This is best obtained by making a patulous opening larger than it is possible to make between the ribs. In the first case here reported, the rib has completely reformed. In the

second it is growing again. In neither case did callus injure the lung. In both cases lung-expansion and chest-motion and shape are perfect. Septicæmia, present in both cases, was quickly cut short by free irrigation, which is only possible through a large opening."

He would therefore conclude that in these two cases, section of the rib at least added nothing to the gravity of either case.

Prof. E. Fletcher Ingals said, some four years ago he had reported fourteen cases of empyema which he had treated. Since that time he had treated a number of others. He had no experience with the method adopted by the reader of the paper, but one of his patients unfortunately had had the operation done upon him. He does not look with favor on the operation excepting as a last resort to allow of greater contraction of the chest. The author of the paper performed the operation skillfully and his patients had recovered. But he says he can open the chest otherwise with safety to the patient and satisfaction to himself. He had treated several cases of empyema similar to those just reported—one, a very young child, perhaps a year and a half old, where recovery followed simple aspiration. He recalled two others which were similar to the first case reported, in which the disease had run from three to five weeks. Drainage-tubes were inserted through a canula, and the cavity washed out frequently, and in both the drainage-tubes were required only between one and two weeks, and the patients were well within three weeks. He thought they recovered more speedily than they would have done if the rib had been resected. In another case, the patient had been sick longer, two or three months, when first seen by him, and it was perhaps six weeks before the child recovered. In all of these cases the expansion of the lungs and chest-wall became perfect.

Children are quite as likely to recover by this method as when ribs are resected, and we avoid a great danger. He believes that he has seen cases die from free opening in the chest-cavity, and he does not think it wise practice to open the pleural sac in this manner.

Dr. John D. Skeer had not had much experience in exsection of the ribs for drainage purposes, but thought that as far as the operation is concerned it is certainly not a very formidable one when performed as Dr. Strong had described it, by making the operation subperiosteal. Dr. Skeer had had a great deal of trouble in the drainage of chest-cavities with small drainage-tubes. He recalled cases which he had treated

in the army, and he thought now if he had those cases under his care at present that he would excise a portion of the rib. Rapid flow of matter under these circumstances does not necessarily follow. The opening in the cavity may be small or large, according to the size of the drainage-tubes, and the flow of matter can be moderated according to the requirements of each individual case. The importance of this grows out of the fact that the lung becomes bound down by bands and adhesions which prevent its rapid expansion, and there may possibly be ulcerated spots admitting air into the pleural cavity, and pus into the lung tissues, from too ready expansion of the lung, and it takes time for these bands and adhesions to soften down, relax and expand to accommodate the lung in its natural expansion. We should differentiate between *serous effusion* into the pleural cavity and suppurative inflammation of the pleura.

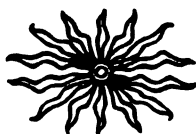
Dr. H. T. Patrick said his experience with the operation of resection is limited to one case which he had under observation three years ago. It was not a case of simple empyema, but of pneumo-pyothorax, in a boy 10 years of age, of over a year's standing, with considerable retraction of the chest, and a small external opening. Three ribs were resected, the sixth, seventh and eighth. The ribs were markedly overlapping one another, and for that reason more was removed. The boy made very satisfactory and rapid recovery. He had abnormal temperature, and was much emaciated, but immediately after the operation, the chest being washed out once a day, he lost his abnormal temperature, and at once began to gain in flesh, and in a few weeks was entirely well. He thinks resection should be limited to this class of cases. He would say that in empyema aspiration, incision and drainage, and resection of the rib should be the order or procedure. In Dr. Strong's second case, the lung's failing to expand well points out one of the weak points of the operation as a primary procedure. Had aspiration been performed first, the conditions would probably have been more favorable for expansion than by making as free an opening as for resection and allowing air to enter the cavity. In aspiration, we follow right in the line of nature's efforts in these cases of retraction of the chest-wall; we allow the chest to fall in and approximate itself to the other surface. There are other dangers connected with this operation as a primary procedure: one is, that there are cases on record where, under an anæsthetic, the cavity has ruptured into a bronchus, and the patient has

choked to death. Deaths have also been recorded from simply washing out the cavity.

Dr. N. H. Pierce: "We resect a rib to simply enlarge our area of drainage." In a case that he had in the last month, where he had drawn off nearly three gallons of fluid in three tapplings, he had first inserted a drainage-tube of half inch in diameter; this drain was constantly being plugged up by coagula, or whatever it might have been, thus causing retention and absorption of the purulent matter, followed by the usual symptoms. He resected a rib after that, and introduced a drainage-tube one inch in diameter, with the advantage of not having it clogged up, and the patient is making a good recovery. Another point: there have been a number of cases reported from the Berlin clinic of death from drowning, occurring from washing out the cavity while the patient was under ether, there being a communication between the pleural cavity and the lungs. It is well, therefore, that the primary cleansing be delayed until the day following the operation. In three cases of this character, he had let out the entire contents of the cavity, amounting in each case to three or four pints, with no abnormal result, using as an antiseptic lavage a saturated solution of boracic acid. There have been deaths reported from the use in the pleural cavity of carbolic acid, thymol and salicylic acid, and the only agent that has not been proven more or less dangerous when used in the pleural cavity is boracic acid, and Dr. Fraenkle insists that this is the only thing that should be used in this capacity.

Dr. Strong said he was very glad to find that his article had excited so much interest. It is certainly a practical subject, and one we are likely to meet with any day, and he is yet in favor of resection. He gave it as his impression that the first resection was made about fifteen years ago. A point against resection was raised by Professor Ingals—that of the too rapid evacuation of the matter. That point was answered by Dr. Skeer, who said that when we have free evacuation we have a corresponding influx of air which takes the place of pus. He believes that to be so. In the two cases reported there was considerable cough at the time the chest was opened, but that quickly subsided. He had no fear that there would be rupture of the lung; he could feel the pleura three-fourths of an inch thick. Until some better reasons are given for not operating, he will be in favor of making a free opening by resection—making an opening large enough that one can get into the cavity and

evacuate it freely; one cannot get out enough pus large as the little finger were thrown out for several days. He has no fear in opening the chest through an opening of an eighth of an inch. In the case of the older boy, shreds of lymph as freely and draining it freely.



BOOK REVIEWS.

TREATISES ON PHYSIOLOGY.

For the use of students and practitioners of medicine. By Henry C. Chapman, M. D., Professor of Institutes of Medicine and Medical Jurisprudence in Jefferson Medical College, of Philadelphia. Pp. xv. and 945. Philadelphia: Lea Brothers & Co. 1887.

The feeling that a new work on such a well-worn subject as physiology must introduce itself with an apology for its existence, was fully appreciated by the author of this one. The excuse given in the preface is, that while the many other text-books in this branch of medical science are excellent, experience gained as a teacher of the subject, convinced him that one was needed, "based upon comparative and pathological anatomy, clinical medicine, physics and chemistry, as well as upon experimental research."

In all cases, which admit of it, what is known as the historical method or order is employed in this book—a plan which deserves commendation. The author seems to have known clearly what he desired to do, and to have done it well. Very free use has been made of illustrations taken from other books, but in each case acknowledgment is made, and the new cuts are sufficiently numerous to make the illustrations, as a whole, very satisfactory. The author's style is so involved that many students will find it difficult to understand some of his descriptions, whilst others are clear enough.

He apparently ignores, or does not credit the results of some recent observations upon the function of the saliva, and upon the superior costal respiration in the female. E. W.

DIFFERENTIAL DIAGNOSIS OF THE DISEASES OF THE SKIN.

For students and practitioners. By Condit W. Cutler, M. S., M. D. Pp. vi. and 139. New York: G. P. Putnam's Sons. Chicago: W. T. Keener. 1887.

The author's statement, that, "thanks to the untiring efforts of such students in dermatology as (here the names of four comparatively young Americans are given) and others, skin diseases are coming rapidly out of the obscurity in which they have been buried for years," etc., is very complimentary to the men whose names are given, but will cause any one to smile who happens to think who the "others" are who are so calmly ignored. But an unwise preface cannot spoil a good book, and this is a good book. The volume consists of Hebra's classification of skin diseases; some suggestions on taking the history of cases; and then follow, in tabular form, arranged in parallel columns, "The characteristic symptoms of those skin diseases which are liable to be confounded one with another." This tabular arrangement has been done both thoroughly and intelligently, and in its legitimate field the book will be found very useful. E. W.

ANATOMY, DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F.R.S. Drawings by H. V. CARTER, M.D., with additional drawings in later editions. Edited by T. PICKERING PICK. A new American, from the eleventh English edition. Thoroughly revised and re-edited, with additions by WILLIAM W. KEEN, M.D. To which is added **LANDMARKS, MEDICAL AND SURGICAL.** By LUTHER HOLDEN, F.R.C.S. Pp. 1064. PHILADELPHIA: LEA BROTHERS & COMPANY. 1887. CHICAGO: A.C. MCCLURG & COMPANY.

The publishers of this work very properly say that "any marked change in a text-book so universally in use as Gray's Anatomy becomes a matter of no inconsiderable interest to the profession; and we do not, therefore, feel that an apology is necessary in handing you herewith a transcript of the title-page and prefaces of the new edition of that classic work."

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"In this (eleventh) edition considerable alterations have been made. The introduction of former editions has been incorporated in the body of the work, for the most part in the form of two sections—one on General Anatomy, the other on Development. These have been entirely rewritten, in order to keep pace with the ever-increasing activity of research in these branches of the science of Anatomy. Some portions of the Introduction have, however, been removed from their former position, and introduced in their appropriate places in other parts of the work; as, for instance, the minute structure of the spinal cord, which has been inserted, with the general description of this part, in the section devoted to the Nervous System."

The whole of the work has undergone a careful revision."

"In the section on Arthrology the movement or movements permitted in each joint have been carefully revised, and the muscles by which these movements are effected have been given. In the section on Myology the action of each

muscle or group of muscles has been carefully considered, and many alterations and corrections made. The anomalous muscles mentioned in former editions have been excluded. It was thought that, interesting as these anomalous conditions may be to the scientific anatomist, they were scarcely necessary, and were to a certain extent out of place in a text-book intended for the use of the student of Anatomy. The other parts of the work, and especially that devoted to Microscopic Anatomy, have been carefully revised, and some alterations in arrangement and detail have been introduced.

The whole of the arteries, veins and nerves in the woodcuts have been colored, and it is hoped that this will give additional clearness to the illustrations and enhance the value of the work. In the section of Osteology the dotted lines showing the attachment of the muscles have also been colored."

The American edition is published both with and without colors. In this American edition one hundred and thirteen new engravings have been added, of which, it is said, many are original, which adds to the interest of the book.

"Among these new illustrations are many of the most obvious utility, such as a series of sections through important joints; a series of frozen sections through the trunk, the extremities and the female pelvis; cuts illustrating the histology of various tissues," etc., etc., thus making very substantial additions to a work that was already too well known, and too fully appreciated, to need other commendation than the fact of its having been a favorite text-book for more than a quarter of a century. In its present form it will be welcomed by the whole medical profession of this country.

DISEASES OF THE FEMALE MAMMARY GLANDS, by TH. BILLROYTE, M.D., of Vienna; and **NEW GROWTHS OF THE UTERUS**, by A. GUSSEROW, M.D., of Berlin, Illustrated. These two works constitute Vol. I X, of the "*Cyclopædia of Obstetrics and Gynecology*," issued monthly during 1887. NEW YORK: WILLIAM WOOD & COMPANY; CHICAGO: W. F. KEENER.

One hundred and fifty-eight of the four hundred and twenty-six pages, which comprise this volume, are written by the distinguished professor of surgery at Vienna. The subject is treated in the clear and complete style which characterizes the author's lectures in surgery.

The work of the Berlin obstetrician suffers by comparison, but is nevertheless admirably done, and the volume, as a whole, fully maintains the reputation established by the earlier numbers of the series.

DISEASES OF THE FEMALE URETHRA AND BLADDER, by F. WINCKEL, M. D., of the Royal University, Munich; and **DISEASES OF THE VAGINA**, by A. BREISKY, M. D., of the Royal University, Vienna. Edited by EGBERT H. GRANDIN, M. D., of New York. These two treatises constitute Vol. X. of "THE CYCLOPÆDIA OF OBSTETRICS AND GYNÆCOLOGY," issued monthly during 1887. NEW YORK: WILLIAM WOOD & COMPANY; CHICAGO: W. T. KEENER.

The authors of this treatise are both popular clinical teachers. We are accustomed to the saying, that whatever the Germans undertake they do thoroughly, and this volume is not an exception to that rule. The size of the book, 398 pages, about equally divided between the two subjects, render the treatment necessarily encyclopædic, as the title of the series indicates. The illustrations are numerous (97) and well chosen. They are very much more carefully engraved and printed than those which appeared in the early numbers of the Cyclopædia, and are fairly satisfactory.

"A Handbook of General and Operative Gynæcology." Vol. I. By Dr. A. Hegar (University of Freiburg) and Dr. R. Kattenbach (University of Giessen). In two volumes. This is also Vol. VI. of "A Cyclopædia of Obstetrics and Gynæcology," issued monthly during 1887. New York: William Wood & Company; Chicago: W. T. Keener.

The most important part of this volume, that upon Ovariectomy, is written by the professor at Giessen. He places Keith and Tait at the head of the list of ovariectomists, and makes an earnest attempt to account for the great success of the latter without the use of antiseptics. The conclusion arrived at by the author is that practically an aseptic condition is secured by the care which the operator mentioned takes to avoid sources of infection. Small incisions and rapidity in operating do not receive the credit, in explaining Tait's success, which is usually accorded them. It goes without saying that the rest of the book is well written.

"A Handbook of General and Operative Gynæcology." Vol. II. By Dr. A. Hegar, and Dr. R. Kattenbach. In two volumes. Volume VI. of "A Cyclopædia of Obstetrics and Gynæcology," issued monthly during 1887.

This concluding volume of the handbook treats of operations on the tubes, uterus, broad ligaments, round ligaments and vagina, operations in urinary fistulae, prolapse operations, and operations upon the vulva and perinæum.

As in the first volume, most of this is written by the professor at Giessen. The work of both of the authors is characterized by the usual German thoroughness and conscientiousness, and the two volumes combined make a very desirable addition to the literature of the subject.

PAMPHLETS RECEIVED.

"The Anatomy and Physiology of the Recurrent Laryngeal Nerves." By Franklin H. Hooper, M. D.

Transactions of the Indiana State Dental Association, 1887.

Transactions of the Illinois State Dental Society, Twenty-third Annual Meeting, 1887.

Medical Communications of the Massachusetts Medical Society, Vol. XIV., No. 1, 1887.

Programme of the Fifteenth Annual Meeting of the American Public Health Association, Nov. 8, 9, 10, 11, 1887.

"Hay Fever." By Seth S. Bishop, M. D.

"A Report on Orthopedic Surgery. Remarks on Stricture of the Rectum." By W. R. Whitehead, M. D.

"On the Existence of Dermatitis Herpetiformis as a Distinct Disease." By Duncan Bulkley, A. M., M. D.

"The Galvanic Treatment of Uterine Fibroids." By Ephraim Cutter, A. M., M. D., LL. D.

"Diet in Cancer." By Ephraim Cutter, A. M., M. D., LL. D.

"To What Extent can we Classify Vesical Calculi for Operation?" By A. Vandevier, M. D.

"A Case of Gastrotomy for Cancer of the Esophagus." By J. Collins Warren, M. D.

"Observations on the Cholera Bacillus as a Means of Positive Diagnosis." By S. T. Armstrong, M. D., and J. J. Kinyoun, M. D.

"The True Nature and Definition of Insanity." By C. H. Hughes, M. D.

"An Experimental Study of the Effects of Puncture of the Heart in Chloroform Narcosis." By B. A. Watson, A. M., M. D.

"Supra-Pubic Lithotomy. A Historical Sketch." By Charles W. Dulles, M. D.

"Courier Review Call-Book." Arranged by E. M. Nelson, M. D., Ph. D., J. H. Chambers & Co.

"The Medical News Visiting List." Lea Brothers & Company.

"The Medical World Visiting List."

Transactions of the State Medical Society of Arkansas, 1887.

Transactions of the Medical Society of the State of California, 1887.

Annual Report of the Supervising Surgeon-General of the Marine Hospital Service of the United States, 1887.

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PROFESSORS.

J. M. DA COSTA, M. D., LL. D.,
Practice of Medicine.

ROBERTS BARTHOLOW, M. D., LL. D.,
Materia Medica, General Therapeutics and Hygiene.

HENRY C. CHAPMAN, M. D.,
Institutes of Medicine and Medical Jurisprudence.

SAMUEL W. GROSS, M. D., LL. D.,
Principles of Surgery and Clinical Surgery.

JOHN H. BRINTON, M. D.,
Practice of Surgery and Clinical Surgery.

THEOPHILUS PARVIN, M. D., LL. D.,
Obstetrics and Diseases of Women and Children.

J. W. HOLLAND, M. D.,
Medical Chemistry and Toxicology.

WILLIAM S. FORBES, M. D.,
General, Descriptive and Surgical Anatomy.

WILLIAM THOMPSON, M. D.,
Honorary Professor of Ophthalmology.

MORRIS LONGSTRETH, M. D.,
Lecturer on Pathological Anatomy.

The FALL TERM is preliminary to the lectures of the Winter Course, and is occupied with topics supplementary to them.

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CHARLES INSLEE PARDEE, M. D., *Dean of the Faculty; Professor of Otology.*
J. W. S. ARNOLD, M. D., *Professor Emeritus of Physiology and Histology.*
ALFRED L. LOOMIS, M. D., LL. D., *Professor of Pathology and Practice of Medicine; Physician to Bellevue Hospital.*
WILLIAM H. THOMPSON, M. D. LL. D., *Professor Materia Medica and Therapeutics; Diseases of the Nervous System; Physician to Bellevue Hospital.*
J. WILLISTON WRIGHT, M. D., *Professor of Surgery; Surgeon to Bellevue Hospital.*
WM. NECKLENBURG POLK, M. D., *Professor of Obstetrics and Diseases of Women and Children; Physician to Bellevue Hospital, and to Emergency Lying-in Hospital.*
LEWIS A. STIMSON, M. D., *Professor of Anatomy; Professor of Clinical Surgery; Surgeon to Bellevue and Presbyterian Hospitals.*
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WM. G. THOMPSON, M. D., *Professor of Physiology.*
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HERMAN KNAPP, M. D., *Professor of Ophthalmology; Surgeon to the New York Ophthalmic and Aural Institute.*
FANEUIL D. WEISSE, M. D., *Professor of Practical and Surgical Anatomy; Surgeon to Workhouse Hospital, B. I.*
HENRY G. PIFFARD, M. D., *Clinical Professor of Dermatology; Consulting Surgeon to Charity Hospital.*
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HARRY P. LOOMIS, M. D., *Adjunct Professor of Pathology, and Director of the Pathological Laboratory.*
S. C. BLAISDELL, M. D., *Demonstrator of Anatomy.*
MAURICE N. MILLER, M. D., *Director of the Histological Laboratory.*

THE PRELIMINARY SESSION will begin on Wednesday, September 21st, 1887, and end October 4th, 1887. It will be conducted on the same plan as the Regular Winter Session.

THE REGULAR WINTER SESSION will begin October 5th, 1887, and end about March, 1888. The plan of Instruction consists of Didactic and Clinical Lectures, recitations and laboratory work in all subjects in which it is practicable.

LABORATORIES AND SECTION TEACHING.—The complete remodeling of the College building and the addition of the new "Loomis Laboratory" adjoining, will be completed for the opening of the session of 1887-88. They will afford greatly increased laboratory accommodations in the departments of Biology, Pathology, Physiology, Chemistry and Physics. A new amphitheater and a new lecture room has been provided as well as adequate facilities for Section Teaching, in which the material for the College Dispensary will be utilized.

Two to five Didactic Lectures and two or more Clinical Lectures will be given each day by members of the Faculty. In addition to the ordinary clinics, *special clinical instruction*, WITHOUT ADDITIONAL EXPENSE, will be given to the candidates for graduation during the latter part of the Regular Session. For this purpose the candidates will be divided into sections of twenty-five members each. All who desire to avail themselves of this valuable privilege must give in their names to the Dean during the first week. At these special clinics students will have excellent opportunities to make and verify diagnoses, and watch the effects of treatment. They will be held in the Wards of the Hospitals and at the Public and College Dispensaries.

Each of the seven Professors of the Regular Faculty, or his assistant, will conduct a recitation on his subject one evening each week. Students are thus enabled to make up for lost lectures and prepare themselves properly for their final examinations without additional expense.

THE SPRING SESSION will begin about the middle of March and end the last week in May. The daily Clinics and Special Practical Courses will be the same as in the Winter Session, and there will be lectures on Special Subjects by Members of the Faculty.

It is supplementary to the Regular Winter Session. Nine months of continued instruction are thus secured to all students of the University who desire a thorough course.

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FOR COURSE OF LECTURES	\$140 00
MATRICULATION	5 00
DEMONSTRATOR'S FEE, INCLUDING MATERIAL FOR DISSECTION	10 00
FINAL EXAMINATION FEE	30 00

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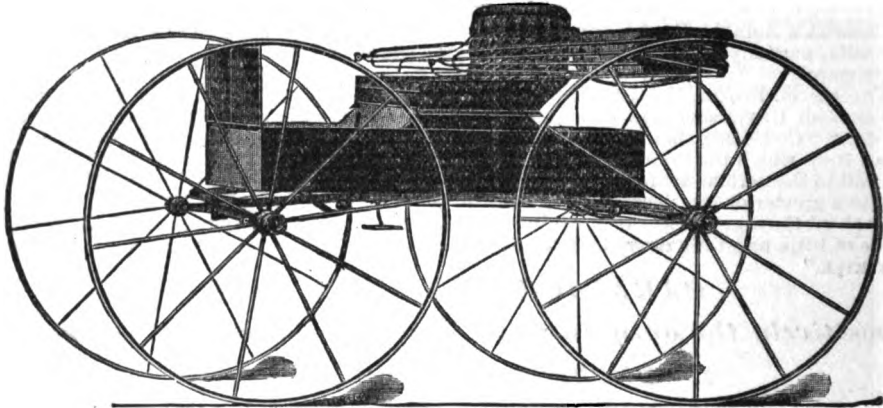
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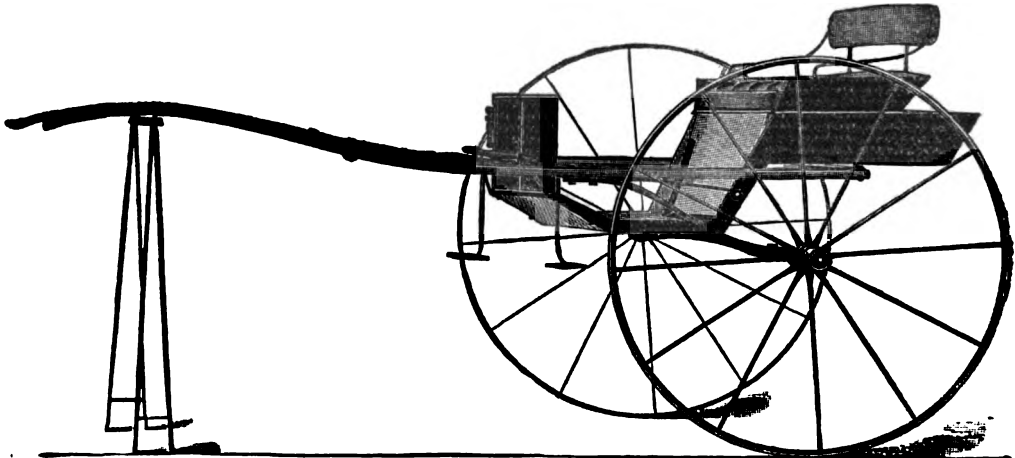
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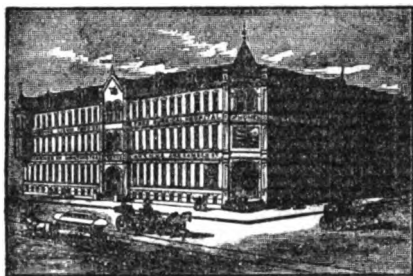
PHARMAGAL . . PREPARATIONS.

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There never was an essay read before any Medical Society on Raw Food Extracts, except on Murdock's Liquid Food, and counterfeit manufacturers of Extracts have published many of our essays to show the value of their counterfeits.

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Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal



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The returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homoeopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks:

In its singularly adapted to scrofulous, syphilitic and tubercular constitutions, its life-restoring power manifesting itself "each with a relative clearness and power corresponding to the order of enervation." For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *ACID* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anemic conditions resulting either from non-assimilation of food or from simple summer complaint. Should a child vomit all milk food and suffer synchronously with diarrhoea or dysentery, the demand for this food is emphatic and unmistakable; also, in general irritability of the stomach, particularly if there be sour-smelling diarrhoea, the food passing through undigested. For the prematurely born it stands pre-eminent. For those weak and debilitated from any cause Murdock's Food is probably the best in the world. Should any indication of cerebral hyperaemia appear, the quantity of food must be diminished; so, too, if, after its protracted use vomiting and diarrhoea ensue, the child has been overfed. Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for. When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

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It does not Lock Up the Secretions.

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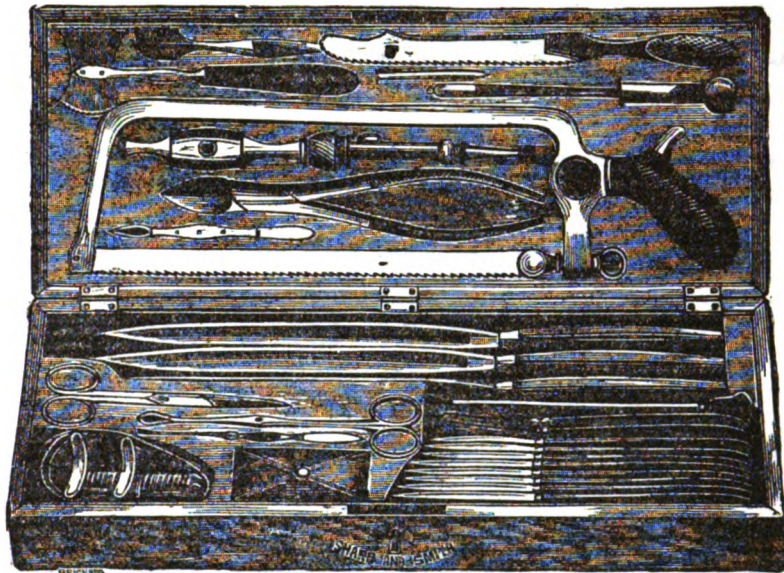
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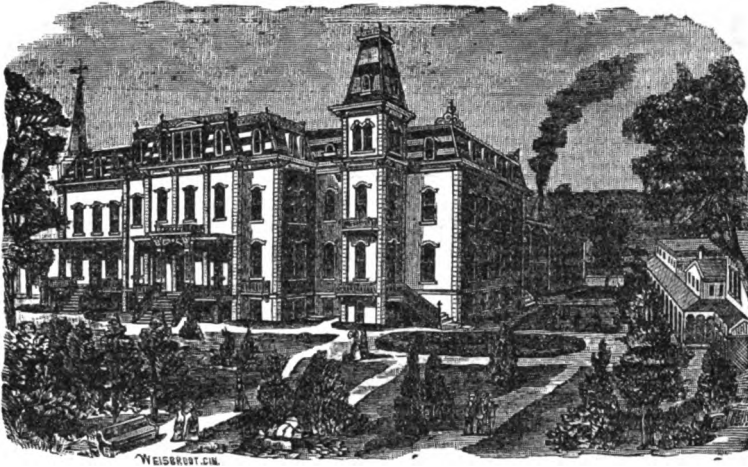
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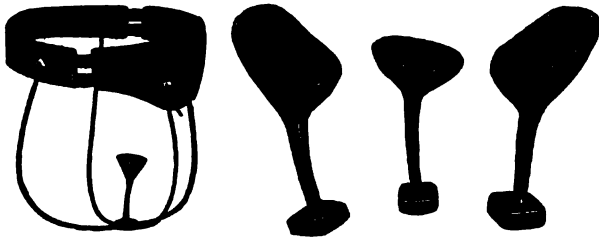
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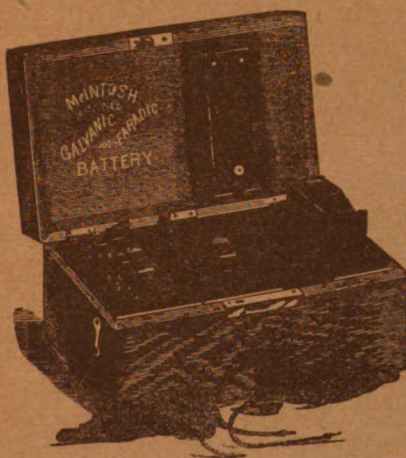
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